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SURGICAL CORRECTION OF TETRALOGY OF FALLOT

RESULTS IN FIRST ONE HUNDRED CASES SIX TO EIGHT YEARS AFTER OPERATION

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On Friday, Sept. 13, 1946, the first aortic-pulmonary anastomosis was performed at the Children's Memorial Hospital for relief of cyanosis due to tetralogy of Fallot.[1] This operation varies from that originally devised by Blalock and Taussig [2] in 1945 in that blood is shunted into the pulmonary circulation directly from the aorta instead of by means of the subclavian artery. The principle of each operation is the same. "What has happened to the children who have had a shunt operation for Fallot's tetralogy?" is frequently asked. To obtain a tentative answer to this question we have made follow-up studies of the first 100 consecutive patients operated upon at the Children's Memorial Hospital. We have included all patients with a diagnosis of tetralogy of Fallot upon whom some form of anastomosis could be performed. We have excluded those who, because of tiny or absent pulmonary arteries, had exploratory operations only. Obviously, it is impossible at this time even to suggest actuarial statistics, since only six to eight years have elapsed between the operations and the study. Immediate and late mortality figures thus far are specific; evaluation of the condition of those who have survived until now is a matter of opinion based upon our clinical and laboratory examinations.

These patients came from many states and Canada, the British Isles, Europe, and Israel. By good fortune and some persistence, we have been able to follow every living patient and to obtain reports on the causes of death of those who died after leaving the hospital. Our objective in this study has been to evaluate the results of operations primarily from clinical and roentgenologic examinations. Electrocardiographic studies and simple laboratory examinations were routinely made, but complicated precedures, such as cardiac catheterization and angiocardiograms, were not part of the follow-up program.

PREOPERATIVE EVALUATION OF PATIENTS

When cardiac surgery for heart disease with cyanosis was started in 1945 and 1946, there were many children in rather desperate condition who had somehow remained alive. This group and a considerable number of smaller children for whom aortic-pulmonary anastomosis was especially devised comprised the first 100 cases.

Age.—In this series 35 patients were between 4 and 36 months of age and 65 were between 3 and 16 years at the time of operation. Age is an especially important factor in mortality and clinical results. The child who in the first year of life becomes severely cyanosed and has attacks of dyspnea and unconsciousness obviously has a severe degree of stenosis. Such children die at an early age without surgery, and those who survive operation are not apt to have as good results as those children whose early symptoms are less severe. It has always been our policy to refuse operation to no child regardless of age or condition, provided a diagnosis of diminished blood flow to the lungs can be made. Operation is delayed in smaller children if their clinical condition indicates waiting is safe.

Blood Findings.—The average red blood cell count before operation was 7,100,000 per cubic millimeter; the highest was 11,000,000. The average hemoglobin reading was 18.5 gm. per 100 cc. Both dropped precipitously after successful operation—the red blood cell count to approximately 5,000,000 per cubic millimeter and the hemoglobin level to approximately 15 gm. per 100 cc., where they remained in those patients whose cyanosis was largely relieved. A slow rise to previous levels was observed in four patients who required second operations.

Preoperative Risks.—Evaluation of the anesthetic risk was made by the anesthesiologist, Dr. William O.

From the Children's Memorial Hospital.

1. Potts, W. J.; Smith, S., and Gibson, S.: Anastomosis of the Aorta to a Pulmonary Artery: Certain Types in Congenital Heart Disease, J. A. M. A. **132**: 627-631 (Nov. 16) 1946.
2. Blalock, A., and Taussig, H. B.: The Surgical Treatment of Malformations of the Heart in Which There Is Pulmonary Stenosis or Pulmonary Atresia, J. A. M. A. **128**: 189-202 (May 19) 1945.

McQuiston. Because of the figures that follow, one might suppose that the anesthesiologist was a bit pessimistic, or, with a view towards self-protection, made a rather dismal appraisal of each patient. In support of his analysis, one must bear in mind that, in the early days of surgery for tetralogy of Fallot, the percentage of markedly cyanosed children was high. In reviewing the cases we are inclined to agree with his evaluation. Preoperatively, 40 patients were classed fair to good risks and 60 as poor to bad. If one classifies a normal child who is to have repair of an inguinal hernia as an excellent anesthetic risk and a child with bronchiectasis who is to have a lobectomy as a good risk, it seems only proper to place the child with severe cyanosis with low respiratory reserve in a lower classification.

OPERATION

An aortic-pulmonary anastomosis was performed in 99 patients and a subclavian pulmonary anastomosis in one. The aorta arched to the left in 81 patients and to the right in 19. As a matter of fact, the subclavian pulmonary anastomosis performed on the 99th patient closed (see case 4 below). Actually, therefore, this becomes a study of the late results of aortic-pulmonary anastomosis. At first we persisted in doing aortic-pulmonary anastomoses on all patients with tetralogy of Fallot regardless of whether the aortic arch curved right or left. It then became and still is our policy to enter the chest on the left side in all patients above one year of age. If the descending aorta is on the left side, an aortic-pulmonary anastomosis is preferred; if the arch curves to the right, the innominate artery will be on the left, and a subclavian-pulmonary anastomosis on the left side is performed, because it is far simpler technically than an aortic-pulmonary anastomosis on the right side. We now perform aortic-pulmonary anastomoses on the right side only in infants whose condition is such that immediate operation is imperative.

The size of the anastomotic channel in an aortic-pulmonary anastomosis is easily controllable. In our early cases, incisions in the aorta and the pulmonary artery preparatory to anastomosis were made 0.31 in. (8 mm.) long, giving an anastomotic channel 5 mm. in diameter. Marked enlargement of the heart in one patient prompted us to shorten the incision to 0.25 in. (6.3 mm.). Such incisions produce an anastomotic channel 4 mm. in diameter. We still continue to make the incisions 6.3 mm. long in all children except infants, in whom they are made 5 mm. long because we anticipated considerable growth of the anastomotic channel.[3] In each instance the length of the incision is carefully measured with a caliper. That more children in the first few cases in whom incisions in the vessels preparatory to anastomosis were made 8 mm. long have not developed excessive enlargement of the heart is most likely due to the fact that suturing then was rather poorly done. Anxiety about bleeding and inexperience prompted us to sew rather snugly, and, in so doing, we undoubtedly—and fortunately—constricted the anastomotic channel somewhat. All anastomoses were made with 00000 Deknatel silk and still are in most cases. However, in infants in whom the vessels are small and in older children who are to have a subclavian-pulmonary anastomosis and whose subclavian arteries are small, 000000 silk is used to lessen the amount of foreign material in the apposed vessels.

Four patients required second operations to relieve recurrent cyanosis.

CASE 1.—A patient, aged 8, had upon admission in 1948 a red blood cell count of 7,300,000 per cubic millimeter and a hemoglobin level of 23 gm. per 100 cc. An aortic-pulmonary anastomosis was performed on the right side under difficulties. Severe hemothorax and pneumothorax complicated the postoperative period. Improvement was minimal and temporary. Two years later a subclavian-pulmonary anastomosis on the left side was followed by a good result.

CASE 2.—A patient, aged 6, a good risk, had an aortic-pulmonary anastomosis on the left side in 1948. Fragmentation of the aorta occurred during the anastomosis. An extra stitch was required to close the rent. When the clamps were removed, there was a barely palpable thrill. Postoperative improvement was questionable. Symptoms recurred, and a subclavian-pulmonary anastomosis was done in California in 1951. The final result was fair.

CASE 3.—A patient, aged 3 years, a fair risk, had an aortic-pulmonary anastomosis on the right side in 1947. For three months the child did well, but then the diastolic phase of the murmur disappeared and cyanosis recurred. In 1949 a subclavian-pulmonary anastomosis was performed on the left side. Immediate improvement was again followed by disappearance of the diastolic murmur and recurrence of cyanosis. At the time of this study, the boy had not improved. The mother made an astute observation. Marked keloid formation of the skin followed each operation, and on the boy's arm a hard, large keloid persisted as a sequel to vaccination during early childhood. The mother wondered whether this tendency toward keloid formation might have caused both anastomoses to close.

CASE 4.—A 4-month-old child who was admitted in 1948 was rather severely handicapped with tetralogy of Fallot and a left aortic arch. The chest was opened on the left, but an aortic-pulmonary anastomosis was impossible because the pulmonary artery was very short. The subclavian artery was sutured to the side of the pulmonary artery. Because the subclavian artery was unusually large, it was constricted slightly by drawing the anastomotic suture more snugly than usual. We believe from later experience that constriction of the subclavian artery at the site of its anastomosis to the pulmonary artery is apt to lead to thrombosis, probably due to excessive eddies in the blood stream. The child was improved, but cyanosis slowly recurred, and the diastolic phase of the murmur disappeared. In 1953 a subclavian-pulmonary anastomosis was performed on the right side with a good result.

To the best of our knowledge, the second case cited above is the only one in which the anastomotic channel closed following aortic-pulmonary anastomosis on the left side in a patient who survived operation for tetralogy of Fallot. However, the anastomotic channel closed in two instances of aortic-pulmonary anastomosis performed on the right side.

MORTALITY

In the first 100 patients operated upon for tetralogy of Fallot, there were nine hospital deaths. In 35 children from 4 to 36 months of age, there were six deaths, or a mortality of 17%. In 65 children between 3 and 16 years, inclusive, there were three deaths, or a mortality of 4.6%. The causes of death were as follows: anoxia, three; tension pneumothorax, one; septicemia and intracranial hemorrhage, one; cerebral hemorrhage, one; subacute bacterial endarteritis and septicemia, one; throm-

3. Potts, W. J., and Riker, W. L.: Study of Growth of Aortic-Pulmonary Anastomoses, Surg., Gynec. & Obst. 94: 358-360 (March) 1952.

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bosis at site of anastomosis and saddle embolus occluding the aorta, one; multiple anomalies of the heart and great vessels, one. The mortality in approximately 200 patients from 2 weeks to 3 years of age operated upon to date is 15.3%, and in about the same number of children from 3 to 16 years of age, the mortality is now 3.6%. It is well recognized that the mortality in small children will be high, as they are operated upon at this age only because they cannot otherwise survive. Discussion of mortality statistics following operations for tetralogy of Fallot is futile, unless the ages of the patients are taken into consideration.

Five patients died after leaving the hospital. All showed varying degrees of improvement but died of the causes described below.

CASE 5.—A patient, aged 2½ years and weighing 23 lb. (10 kg.), who had been deeply cyanosed since birth and required almost constant oxygen, had an aortic-pulmonary anastomosis on the right side in 1947. Her recovery was uneventful and dramatic. Following chickenpox, measles, and two attacks of pneumonia and atelectasis, she died of chronic pulmonary infection in October, 1950. Her color had remained good, and the continuous murmur had persisted.

CASE 6.—A patient, aged 1½ years, was a puny, helpless child who had weighed 15 lb. (6,804 gm.) and had a red blood cell count of only 5,000,000 per cubic millimeter. An aortic-

TABLE 1.—*Results Six to Eight Years After Aortic-Pulmonary Anastomosis for Tetralogy of Fallot*

	No. or %
Group 1: Good	68
Group 2: Fair	16
Group 3: Poor	1
Group 4: Unchanged	1
Group 5: Improved, but died later	5
Group 6: Hospital mortality	9
Total	100

pulmonary anastomosis was done in 1947. The postoperative course was complicated by pneumonia. On follow-up visits one and two years after surgery, a continuous murmur was heard. The child was improved but never robust. The heart was 50% enlarged two years after surgery. The family physician reported that the child died of pneumonia at home shortly after the last visit.

CASE 7.—A 7-year-old patient, a good risk, who was able to walk about one-half block before squatting and had a red blood cell count of 6,500,000 per cubic millimeter, had an aortic-pulmonary anastomosis in 1947. Following operation he was well and very active. At the one year check-up examination, there was a continuous murmur, and the heart showed 10% enlargement. He died at home of acute rheumatic fever one year later, according to his family physician.

CASE 8.—A patient, aged 2½ years, with a red blood cell count of 8,300,000 per cubic millimeter, was admitted on Oct. 18, 1947. For three months prior to admission she had had unexplained intermittent fever diagnosed as subacute bacterial endocarditis, although repeated cultures were negative. After an afebrile period, an aortic-pulmonary anastomosis was performed Oct. 21, 1947, and was followed by uneventful recovery and marked improvement until Feb. 19, 1948, when she was readmitted with high fever and findings suggestive of a brain abscess on the right side. She died seven days later and, at postmortem examination, a large brain abscess was found in the right cerebral hemisphere. In retrospect, we believe that the child had an unrecognized brain abscess before operation and that it later flared up with a fatal result. The aortic-pulmonary anastomotic channel was clear and measured 4.5 mm. in diameter.

CASE 9.—A patient, aged 7 months, weighing 12 lb. (5.4 kg.), who had been cyanosed since birth, was admitted with a diagnosis of tetralogy of Fallot. An aortic-pulmonary anastomosis was performed March 24, 1948, and, because the aorta and pulmonary artery were very small, the anastomotic channel was made only 3 mm. in diameter. The child did well after operation. At the six month check-up examination there was a continuous murmur and the heart showed only 10% enlargement; however, about a year later she began having "heart attacks" and died at her home two years after operation, presumably of heart failure.

CLINICAL EVALUATION

Our prime interest in this study was to determine the clinical results in those 86 patients alive six to eight years following aortic-pulmonary anastomosis for tetralogy of Fallot. Follow-up studies included clinical evaluation of every patient. Many patients have been seen every year since operation. Patients living in foreign countries and in states far removed from Chicago were evaluated by reports from parents and physicians, who cooperated enthusiastically. Repeated roentgenograms of the heart were made of patients living in and about Chicago and were compared with previous films. Electrocardiograms likewise were part of the checkup routine. The large majority of patients were seen and evaluated personally by at least five peoeple.

It is obviously impossible to fashion an accurate measuring device for evaluation when dealing with such intangibles as parental pride, comparison of physical condition "before and after" operation, and the patient's own desire to be considered normal and therefore free from restraints. It was decided to place in group 1 children who show little or no visible cyanosis when at rest and slight cyanosis after exercise; who are able to attend public school, play, ride bicycles; and who, in general, do what other children of their age do, with the exception of violent exercise. (Recognizing that no child's heart is normal after any operation for tetralogy of Fallot even though all visible signs of cyanosis have disappeared, it has routinely been our advice that all competitive athletics be avoided after operation. Not all have heeded our advice.)

In group 1 were placed 68 children. It was interesting to observe that residents and fellows in cardiology were inclined to place children in a higher category of improvement than those who had been active in their treatment. All of these children had the characteristic continuous murmur of a functioning artificial ductus. One boy, aged 11, operated upon in 1947, who was deeply cyanosed before operation, was asked before leaving the hospital what he intended to do when he returned home. His unhesitating reply was "Beat up the boys who used to call me 'blue lips.'" When he returned for check-up examination seven years later he reported, "Mission accomplished." Furthermore, he now caddies during the summer months and boasts that on the hilly course he can caddy double and keep up with the other boys. The heart is truly "tough." Included in this group is a boy now 17 years of age, operated upon when he was 9, who, clinically, has an excellent result. His x-ray film, however, shows an aneurysmal dilatation of the left pulmonary artery. We consider his future uncertain. Another child was well for six years after operation and has recently recovered from what was interpreted by the family physician as bacterial endocarditis. To our knowledge, this is the only case of late bacterial invasion of the

vessels in this series of living patients. In general, these children and young adults live more or less normal lives; they walk to school, climb stairs, and chafe under the restrictions placed upon them by their parents. Many, however, will admit under pointed questioning that they tire more easily than their schoolmates.

In group 2 were placed those children who are moderately handicapped. They tire easily on moderate exertion. Some have persistent mild cyanosis when at rest, but all become cyanosed upon exertion or when fatigued. They are excused from all gymnasium work. In this group were placed 16 children. All show moderate to marked improvement over their condition before surgery. All but one have the characteristic continuous murmur. In group 3, the severely handicapped, is one patient, a 13-year-old girl who was operated upon in January, 1947. Because she had been bedridden for two years before surgery, a large anastomosis, 6 mm. in diameter, was made. She was promptly relieved of all cyanosis. The following summer she went on a vacation to Yellowstone Park, where she was allowed to run and climb as she wished. At the first check-up examination nine months after surgery, her heart was tremendously enlarged, and before the end of the year she went into heart failure. She has been in heart failure a number of times since then

TABLE 2.—*Cardiac Enlargement Six to Eight Years After Aortic-Pulmonary Anastomosis*

No. of Patients	% *	Clinical Estimate
13	0-15	Little or none
15	15-30	Slight
14	30-50	Moderate
6	50-75	Large
3	75-100	Very large

* Measured according to Meyer's [4] method.

and goes to a school for the handicapped. Her heart remained the same size for seven years. During the past year her heart has decreased from 125% to 60% enlargement. She has developed an aneurysm of the left pulmonary artery, and, presumably because of this, the diastolic phase of the murmur disappeared. She continues to be free from cyanosis but, obviously, has a poor prognosis. Why her heart has decreased in size we do not know. In group 4, the unimproved, is one patient (case 3) who had two operations. Each operation was followed by only temporary improvement. The remaining 14 patients have been discussed in the section on mortality.

ROENTGENOGRAPHIC FINDINGS

Although roentgenograms were obtained after the operation in the majority of patients, some of the films were inadequate for comparative studies, and occasionally we could obtain reports only without films. Measurements of heart size were made according to the method of Meyer.[4] His method is based on the work of Hodges, Adams, and Gordon,[5] who correlated the height and weight of a child with the size of the heart. Meyer simply measures the long and short diameter of the heart, correlates these with height and weight in children, and expresses degrees of enlargement in percentages. This method of calculating percentages of cardiac enlargement is undoubtedly more accurate than comparisons of the cardiothoracic ratios. All his studies, however, were made on children over 3 years of age. Recognizing that in growing children, especially in smaller children under 3 years of age, comparison of heart size from year to year is not mathematically infallible, we have interpreted to the best of our ability the roentgen studies of heart size as listed in the table. In 51 of the 86 children who survived for six to eight years following surgery, adequate data was available for fairly accurate measurements. It will be noted in table 2 that we have listed percentages of enlargement as calculated by one of us (H. W.), along with common descriptive terms used by clinicians.

It is a curious fact that, although these children all had approximately the same operations, there is such a discrepancy in the degree of cardiac enlargement following surgery. We can only assume that the size of the anastomoses varied somewhat in spite of careful measurement with calipers of the incision in the vessels or that the anastomosis increased in size more in some patients than in others. Variation in the uncorrected pathology inside the heart may also be a factor.

When comparing clinical and roentgenographic findings, it is at once apparent that we have placed only one child in group 3, the severely handicapped, and yet report a number of children whose hearts are markedly enlarged. Roentgenographic and clinical interpretations were made separately and then compared. Even after seeing the large hearts as shown on the films we could not place these children anywhere but in group 1 because, clinically, they are well and have at no time shown signs of cardiac embarrassment. In fact, one boy now a sophomore in high school has actually, though unwisely, gone out for track work. None show cyanosis except with vigorous exercise. These hearts became large rather promptly after operation and have remained approximately the same size for six to eight years. We debated long into which classification we should place those children who have very large hearts and considered that they belong in group 1 so long as they are clinically well and active. A few children with typical postoperative continuous murmurs and little enlargement of their hearts, nevertheless, have only fair clinical results and were placed in group 2. Heart size after operations for tetralogy of Fallot is undoubtedly an important factor in ultimate prognosis but is not a guide in early results, that is, for six to eight years. What the heart muscle unhampered by disease of its vessels can do is constantly astounding.

ELECTROCARDIOGRAPHIC FINDINGS

Of 86 patients living at the time of this study, 50 had satisfactory preoperative and postoperative multiple lead electrocardiograms that were adequate for comparable studies. Interpretation of electrocardiographic tracings in children taken over a period of six to eight years must be made with the understanding that electrocardiograms constantly change with growth, especially during the first five years of life. Twenty-eight patients (56%) had changes in the electrocardiogram that were

4. Meyer, R. R.: A Method for Measuring Children's Hearts, Radiology **53**: 363-370 (Sept.) 1949.

5. Hodges, P. C.; Adams, W., and Gordon, W.: Estimation of Cardiac Area in Children, J. A. M. A. **101**: 914-916 (Sept. 16) 1933.

thought to be related to the operative procedure. Changes were limited to the P waves in 14. Within six months to one year after surgery the peaked, prominent "P congenitale" in leads 2 and 3 became much smaller or assumed normal contour. Changes in contour of QRS, S-T segment, or T wave appeared in 14. In six of these the R wave became smaller over the right chest leads, the QRS in lead 1 changed from inverted to diphasic or small and upright and the S wave over the chest leads became smaller. That is, electrocardiographic evidence of strain of the right side of the heart decreased over the years in these six patients without evidence of left ventricular hypertrophy.

Definite evidence of combined heart strain appeared after operation in six children. Evidence of a tall RR′ pattern or delayed intrinsicoid deflection in the right chest leads, with a tall R wave, depressed S-T segment, and low amplitude, flat or inverted T waves over the left side of the chest were considered evidence of combined heart strain or biventricular hypertrophy. It is worthy of note that only two of the children who have marked postoperative enlargement of the heart are in this group of six who show electrocardiographic evidence of combined heart strain. One patient developed progressive lengthening of the PR interval from 0.10 to 0.28 second over a period of five years. Significant but nonspecific QRS changes in the limb leads appeared in one patient. The general impression derived from this study was that, aside from six patients who developed a pattern of combined heart strain, the electrocardiographic changes over the years after aortic-pulmonary anastomosis revealed few significant changes.

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COMMENT

In this interim report of the first 100 consecutive patients operated upon at the Children's Memorial Hospital for tetralogy of Fallot, we have tried to give a fair appraisal of results but recognize, first, that our collection of data left something to be desired. Although the large majority of patients were seen and examined, we had to be satisfied with telephone conversations with or questionnaires from patients for whom it was not possible to travel long distances to Chicago. It is well recognized that parents quite naturally shade their opinions in favor of good reports concerning their children. Second, we recognize that when dealing with an intangible factor such as clinical evaluation of a patient—in spite of the intended stern attitude of impersonal appraisal—the examiner is bound to be influenced favorably by the swaggering, enthusiastic boy and the bright-eyed girl in a crisply starched dress. Allowing for our prejudices, we believe we have given a rather fair analysis of the patients who survived following operation for tetralogy of Fallot.

SUMMARY

In a follow-up study of 100 children operated on for tetralogy of Fallot, results six to eight years after operation were good in 68% and fair in 16% of cases. One patient was classified as having a poor result and one as unchanged. Fourteen patients have died; five of these improved after operation but died later. The hospital mortality was 9%.

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LIVER FUNCTION AND HEPATIC COMPLICATIONS IN PATIENTS RECEIVING CHLORPROMAZINE

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The use of chlorpromazine [Thorazine, 10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride] is occasionally complicated by the development of jaundice. In our series of over 800 patients treated with this drug, 5 such cases have occurred. Results of laboratory studies in these instances have consistently indicated an obstructive process within the biliary system. The complication has proved to be benign, the ensuing clinical courses being characterized by rapid resolution of symptoms and uneventful recovery. Though this side-reaction occurred only rarely and was apparently confined to the bile passages, we believed that the possibility of damage to the liver cells demanded further investigation. Of particular concern to us was the question of whether patients receiving the drug over relatively long periods of time sustained subclinical liver damage. The presence of the phenothiazine nucleus in chlorpromazine further suggested the need for this determination, since phenothiazine itself, in sufficiently high dosage, has been reported to produce liver disease.[1]

The aim of the study, therefore, was to ascertain (1) whether chlorpromazine represented a highly specific hepatotoxin and, if so, the site of damage, or (2) whether liver involvement was simply a random effect that could be expected to occur in a certain number of patients hypersensitive to the drug. Though definitive conclusions must await further study, the results that follow represent impressions derived from a preliminary investigation of these questions.

MATERIAL

The study included a total of 89 patients, all of whom were being treated for psychiatric illnesses of various clinical types. In no case was there a history of liver dis-

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Read at the joint meeting of the Mexican Neuropsychiatric Society and the Texas Neuropsychiatric Association, Galveston, Texas, Oct. 25-26, 1954.

1. Hubble, D.: Toxicity of Phenothiazine, Lancet **2**: 600-601 (Nov. 15) 1941.

ease, and physical examinations had revealed no findings of contributory significance. For purposes of this report the patients are divided into three groups. Group 1 consists of five cases in which clinically evident jaundice developed. Table 1 shows age and sex distribution, diagnosis, the presence or absence of allergic history, and other complications that developed during the course of therapy. Table 2 shows duration of administration of chlorpromazine prior to appearance of icterus; minimum, maximum, and average doses that had been given; and route of administration. Group 2 consists of 14 patients who were subjected to an extensive battery of liver function studies prior to and during the administration of a generally constant dose of chlorpromazine for periods of time varying from two to six weeks. Group 3 consists of 70 cases in which less extensive liver function studies were done prior to and during treatment. Dosage and duration of administration varied widely in this group.

METHOD

Group 1.—Pretreatment liver function studies had been obtained in three of the five patients in whom jaundice subsequently developed; all had been reported as being normal. In one case the control study had revealed spotty but minimal evidence of hepatic disease. Chlorpromazine was then instituted at low dosage levels and increased progressively as the case warranted. Maximum daily dosage ranged from 100 to 1,000 mg. Use of the drug was immediately discontinued when jaundice became apparent, and serial laboratory tests were done frequently thereafter. These included quantitative van den Bergh determinations, serum alkaline phosphatase, blood cholesterol, urine bilirubin and urobilinogen, cephalin-cholesterol flocculation, thymol turbidity, total serum proteins with albumin-globulin ratio, prothrombin time, and sulfobromophthalein (Bromsulphalein) retention. All tests listed were not done in all patients.

Group 2.—In group 2, 14 patients were given chlorpromazine for varying periods that averaged more than one month. Ten received 25 mg. orally three times a day; four received doses that varied from 25 to 100 mg. given two to four times a day. To detect any possible early biliary obstruction or change in hepatocellular function, the patients were followed at regular intervals with tests of

TABLE 1.—*Descriptive Data on Patients Developing Jaundice During Chlorpromazine Therapy*

Case	Age, Yr.	Sex	Diagnosis	Allergic History	Associated Complications
1	21	F	Hysterical character	....	.....
2	22	M	Situational reaction	Yes	Rash
3	30	M	Phobic neurosis	....	.....
4	34	F	Chronic schizophrenia	Yes	Rash
5	43	M	Chronic schizophrenia	?	.....

liver function. Typically, these tests consisted of (1) thymol turbidity determinations twice weekly, (2) 48-hour cephalin-cholesterol flocculation determinations twice weekly, (3) direct serum bilirubin determinations twice weekly, (4) urinary bilirubin and urobilinogen determinations three times weekly, and (5) a determination of sulfobromophthalein retention once before or near the beginning of chlorpromazine therapy and at least once after or near the end of therapy. Occasional exceptions to this procedure occurred, most of which were in the nature of laboratory or nursing errors, but these exceptions were taken into consideration in the evaluation of the results. Two pretreatment control studies were obtained in 10 of the 14 patients, one control study was obtained in one patient, and no pretreatment controls were done in the remaining three patients.

TABLE 2.—*Therapeutic Regimen in Patients Developing Jaundice During Chlorpromazine Therapy*

Case	Duration of Therapy,* Days	Dose per Day, Mg.			Route of Administration
		Minimum	Maximum	Average	
1	8	200	300	210	Oral
2	17	100	200	123	Oral
3	21	150	200	160	Oral
4	22	150	1,000	600	Oral-I.M.
5	20	200	800	320	Oral-I.M.

* Prior to development of icterus.

Group 3.—The third group, 70 patients, received chlorpromazine for varying periods of time and in varying dosage totals. The average duration was one month, with a range of one week to five months. Dosage ranged from 100 to 1,000 mg. daily. The usual procedure was to initiate therapy at a dose of 25 mg. four times a day, after which it was increased to therapeutically effective levels and then reduced. The average maximum reached was 800 mg. daily. Pretreatment controls were obtained in each case and consisted of tests for serum bilirubin, cephalin-cholesterol flocculation, and total serum proteins with albumin-globulin ratio. If there was suggestive evidence of any abnormality, further tests were done, which included sulfobromophthalein retention and thymol turbidity tests. Thereafter serum bilirubin determinations were done weekly on all patients. In the event of a rise in serum bilirubin level, more extensive tests followed.

RESULTS

Jaundice.—The occurrence of jaundice was erratic, appearing sporadically in relatively widespread areas and at various times. An infectious factor was thought to be of little probability. There was no correlation among the factors of age, sex, and diagnosis. The total daily dose did not appear to be a significant factor. The route of administration was usually oral; two of the patients had received the drug intramuscularly during the early phases of treatment. One factor that may be of significance was noted in two of the five cases. In both there was a definite history of allergic skin reactions; both patients developed dermatitis and jaundice during the course of chlorpromazine therapy.

In the majority of cases icterus appeared approximately three weeks after chlorpromazine therapy had been instituted. With the exception of one patient in whom there was a generalized maculopapular eruption, no unusual side-reactions had previously occurred. Premonitory symptoms of the jaundice were generally very mild; the patients, though experiencing general malaise, were in no great distress. In several instances if icterus had not appeared the complication might have escaped detection, for often the complaints were at first attributed to the psychiatric condition. Symptoms usually consisted of persistent or intermittent nausea, vague abdominal pain, and occasionally vomiting. In three patients there was sudden elevation of temperature, which ranged from

100 to 102 F. One patient simultaneously developed a generalized urticaria. Generally these symptoms preceded the appearance of icterus by three to five days, although in one patient there was a two week lag and in another there were no prodromal signs.

The succeeding clinical course in each case was uneventful, disturbing symptoms disappearing within several days, icterus clearing within two to three weeks. Treatment was of a supportive nature, consisting mainly of withdrawal of the drug, intravenously administered glucose when indicated, therapeutic vitamin regimen, and high carbohydrate–high protein–low fat diet. Laboratory findings were characteristically those of obstructive jaundice, with hyperbilirubinemia, elevated serum alkaline phosphatase level and bilirubinuria. Cellular function did not appear to be impaired as determined by cephalin-cholesterol flocculation, thymol turbidity, and total serum proteins with albumin-globulin ratio. Unfortunately, in only one case was prothrombin time obtained; in this instance it was 100% of normal. Chlorpromazine therapy was later reinstituted in one patient who had previously developed both dermatitis and jaundice while taking a total daily dose of 1,000 mg. Neither complication recurred, and liver function tests remained normal.

Hepatotoxic Studies.—There was no evidence that hepatotoxic effects were occurring in the 84 patients studied for possible change in hepatocellular function. In the series of 14 patients who were closely followed by means of comprehensive batteries of liver function tests, there was no clinical or laboratory evidence of development of hepatic dysfunction. Bile excretion, as indicated by determinations of serum bilirubin, urinary bilirubin, and urinary urobilinogen, was not disturbed. Cellular function was likewise not impaired. Isolated increases in cephalin-cholesterol flocculation to abnormal levels (2+ to 3+) occurred during the course of treatment of four of the patients; however, the remainder of their tests were normal, and we were confident that they were experiencing no hepatocellular damage from therapy. Thymol turbidity units varied greatly, although variations generally remained within normal limits. The averages between the control studies and the studies during treatment were in most cases remarkably consistent. Only two patients ever showed thymol turbidity values greater than the normal 5 units. In one values ranged from 4 to 10 units. The mean before treatment had been 5.0; the mean during treatment was 6.2. In the other case a single elevation occurred 23 days after treatment had begun, but subsequent determinations were consistently within normal limits. In both these cases the possibility of liver involvement was discounted on the basis that all other tests remained normal. In the group of 70 patients in whom less extensive liver function studies were done, no changes of significance occurred. Serum bilirubin levels remained normal throughout the duration of therapy in all but three patients. Each of the latter showed a single elevation during the course of therapy, but more extensive batteries failed to corroborate this finding.

COMMENT

On the basis of results obtained in this study it would appear that under ordinary circumstances chlorpromazine does not interfere with normal liver function. There is furthermore no evidence that the drug is injurious to the liver cells, even on prolonged administration. This report has necessarily included only patients who were followed by serial tests of hepatic function. Not included are over 700 patients, some of whom have been taking the drug for as long as six months, who have manifested no clinical symptoms of liver involvement throughout the duration of therapy.

We are of the opinion that the development of jaundice is an expression of individual drug idiosyncrasy. We have been unable to correlate the appearance of this complication with any factors that we have considered. The process is apparently confined to the bile passages, the liver parenchyma being spared. Although our deductions are based solely on the results of biochemical tests, studies of liver biopsy material by others [2] have revealed occlusion of the biliary canaliculi with stasis of bile and varying degrees of inflammatory cell infiltration but no parenchymatous change. Chlorpromazine therapy was reinstituted in one of our patients who had previously developed jaundice, without recurrence. This feature further suggests that rather than toxic specificity of the drug itself, an idiosyncratic, or perhaps allergic, factor exists. Another possible clew may lie in the finding that the only two patients in our series who developed both dermatitis and jaundice had shown allergic reactions to other chemicals in the past. We consider that chlorpromazine is not a specific hepatotoxin and that, in the absence of extenuating factors such as hypersensitivity, hepatocellular function and bile excretion will remain undisturbed.

CONCLUSIONS

Jaundice is an infrequent complication of chlorpromazine [10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride] therapy and is believed to be an expression of individual drug idiosyncrasy. The jaundice appears to be due to obstruction within the intrahepatic bile passages, hepatocellular function remaining unimpaired. Preliminary investigation suggests that under ordinary circumstances chlorpromazine is not hepatotoxic and can be administered over prolonged periods of time without undue risk.

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Treatment of Acne.—Oral antibiotics remain a useful adjunct in the management of pustular acne. Relapses of the infection are frequent and require repeated courses of therapy. Tetracycline, erythromycin, and carbomycin are effective agents in controlling the pyogenic element of acne. They are well tolerated, with a minimum of side-reactions. Micrococcus pyogenes cultured from [an] acne patient did not show a high sensitivity to erythromycin but evidenced no resistance to it. Erythromycin must be used longer than tetracycline to produce improvement. Carbomycin required even higher doses and more prolonged therapy to be effective. Conventional dermatologic therapy enhanced further the clinical results and the administration of Staphylococcus toxoid also aided in reducing the infectious element.—F. T. Becker, M.D., and M. G. Fredricks, M.D., Evaluation of Antibiotics in the Control of Pustular Acne Vulgaris, *A. M. A. Archives of Dermatology and Syphilology*, August, 1955.

CORTISONE IN IMMEDIATE THERAPY OF APOPLECTIC STROKE

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Cerebrovascular diseases still remain among those most neglected because of the fatalistic philosophy commonly associated with their management. It is estimated that there are approximately 1,800,000 sufferers from this affliction in the United States today and that a large percentage of these require one to four persons to take care of their needs.[1] In recent years progress has been made in restoring many such patients to lives of independence and productivity, as a result of the application of modern methods of rehabilitation and retraining.[2] The advances in the therapy of residual paralytic defects by physical methods, however, have far exceeded the questionable gains in the treatment of the acute phase of the cerebrovascular accident.

METHODS OF TREATMENT

The immediate treatment of "stroke" is mainly devoted to measures for saving life and restoring physiological balance. All authorities stress the importance of skillfull nursing care, maintenance of hydration, attention to bladder and bowels, and the prevention of hypostatic pneumonia. In most places the conventional form of therapy is still largely one of expectancy on the part of patients and physicians as well. The current attitude toward therapy has been summarized by Alvarez [3] in a recent editorial as follows: "The best treatment for cerebral thrombosis is an expectant one. We all know that in many of these cases a weakness of the arm or leg clears up, and often aphasia disappears almost entirely. This recovery may be due to subsidence of edema of the brain or it may be due to rerouting of impulses around the destroyed area of the brain tissue."

Nevertheless, despite the recognition that return of function often occurs spontaneously, owing to a clearing of cerebral edema and improvement in cerebral blood flow, there is discontent with the necessity for awaiting expectantly the final and unalterable decree of nature. The hope of decreasing the degree of neurological residua has stimulated interest in a more active treatment of cerebrovascular occlusions. Frequent attempts have been made to improve the cerebral circulation in such patients by the administration of vasodilator drugs, by the injection of procaine into the stellate ganglion, and by the administration of anticoagulants. Drugs of the vasodilator group have been found of little value for treatment of organic occlusion of the cerebral vessels; on theoretical grounds alone, there is little to suggest that any lasting benefit could result from a short period of vasodilation. When neurological signs and symptoms are the result of transient cerebral vasospasm, however, large doses of papaverine (0.1 to 0.3 gm., three or four times a day) do have great value in the prevention of recurrences.[4] It has been argued that these phenomena are due to minute thrombi or "little strokes," but many, probably a majority, are based on temporary spasm of the arteries involved. Many patients are seen who have a series of transient strokes that may range in severity from slight numbness or weakness of the side of the face, or slight difficulty with speech, to hemiplegia and that may last for a few minutes to several days, with complete recovery. They may recur repeatedly in the same day in identical fashion. These phenomena frequently portend a major paralysis with all of its catastrophic effects. The striking clinical improvement that we have reported from the use of papaverine in the prevention of these vasospastic episodes has been supported by observations indicating a substantial increase in cerebral blood flow after the administration of the drug.[5] Consequently, when premonitory symptoms become manifest, papaverine in large dosage does seem to constitute a rational and effective preventive measure.

There is a divergence of opinion in the literature as to the efficacy of blocking the stellate ganglion. The difficulty in differentiating between clinical improvement resulting from therapy and that occurring spontaneously indicated the need for carefully controlled studies. It is essential to bear in mind the natural course of this syndrome and the fact that many, if not most, of these patients show striking improvement during the first week or 10 days. It has been argued that no logical basis exists for blockage of the stellate ganglion, since most observations on the circulation of the brain show that the cerebral vessels are not under the control of the cervical sympathetic nerves. Scheinberg [6] and Harmel and associates [7] actually found no alteration in cerebral hemodynamics after blockage of the stellate ganglion, but it has not been established whether the patients in their study were comparable to those who receive such therapy for clinical purposes. Final evaluation of the indications and usefulness of this procedure must await more extensive experience.

Anticoagulants have been tried in patients with cerebral thrombosis in an effort to prevent further extension of preexisting thrombi or the formation of new clots. In

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cases of hemorrhage or certain blood dyscrasias, the danger of this form of therapy is obvious. It is also believed that the risk of secondary hemorrhage in a softened area of the brain is increased if the clotting mechanism is disturbed [8]; hence, no definite conclusions are warranted about the value of this form of treatment.

From these considerations it can be seen that no acceptable therapy for stroke is now available to hasten recovery from the acute phase of the attack or to reduce the extent of the cerebral lesion and its associated neurological defects. In earlier studies [9] concerned with the rehabilitation of hemiplegic patients, we observed that the administration of cortisone promoted a sense of well-being, improved motivation, stimulated psychomotor activity, and diminished pain. These desirable actions of the drug permitted early ambulation and shoulder manipulation, even in neglected cases in which there were painful contractures. In all of these patients cortisone was administered many weeks or months after the development of the acute cerebrovascular occlusion. The possibility that cortisone may also have value in the acute phase of the disease immediately after the onset of stroke was suggested, not only by these findings but also by other considerations of a theoretical nature. Many workers [10] have demonstrated that, after administration of cortisone, there is delay in fibrosis, diminished cellular reaction, scanty formation of ground substance, little capillary formation, and complete lack of fibrin and exudate. Inasmuch as local cerebral edema surrounding an area of infarction is commonly regarded as a contributory factor in the perpetuation of neurological signs, the retardation of the mesenchymal tissue response would appear to be a most important and immediate objective of therapy. If this retardation could be achieved, nerve cells that otherwise would eventually die of anoxia as a result of the tissue reaction in the zone surrounding the affected area might be spared, and the ultimate irreversible changes in the brain might be held in abeyance or reduced to a minimum. The probability of such an effect from cortisone in cerebral infarction is strengthened by observations of its influence on tissue response to incision of the brain [11] and on experimentally produced myocardial infarction in animals.[12]

In a preliminary report [13] we recorded the results obtained in 15 consecutive cases of apoplectic stroke that were treated by means of a short course of cortisone, initiated within 48 hours after the onset of symptoms. It was found that cortisone was without benefit in the 3 patients in the series who suffered a cerebral hemorrhage but that it exhibited striking effects in 9 of the 12 patients with hemiplegia due to cerebral thrombosis or embolism. Because of these encouraging results, this method of treatment has been carried out in all patients coming under our care in whom acute cerebral thrombosis or embolism was associated with severe neurological signs. We have treated 35 such patients by steroid therapy. This paper is concerned with the results obtained under this regimen.

CLINICAL MATERIAL AND METHODS

Of the 35 patients in this series, 30 were men and 5 were women. The ages ranged from 40 to 74 years, with a mean of 60.2 years. Hypertension was present in 24 of the 35 patients. A history of angina pectoris was obtained in eight and previous myocardial infarction in seven. The cause of the cerebrovascular occlusion was diagnosed as thrombosis in 27 cases and as embolism in 8. The latter occurred in three patients convalescing from acute myocardial infarction and in five patients with rheumatic heart disease and chronic auricular fibrillation. Twelve of the total group had previously suffered from bouts of congestive heart failure. Diabetes mellitus of mild to moderate severity was present in six patients. In all but three of the total group the signs and symptoms were severe. Eight patients were disoriented or semicomatose at the time treatment was instituted. Eighteen patients showed marked hemiparesis on the right, conjugate deviation of the eyes, and varying degrees of clouded consciousness; marked facial weakness, aphasia or dysarthria, and difficulty in swallowing were found in most of these 18 patients. Four patients exhibited complete flaccid paralysis of the left extremities. Eight patients showed hemiparesis on the left, but, in three of these, the symptoms were of a mild nature. The remaining subjects in the series had marked involvement of the face and upper extremity, but the leg either escaped involvement or was only mildly affected. In most instances 300 mg. of cortisone was administered orally in divided doses on each of the first two days, with progressive diminution to a maintenance dose of 50 mg. daily through the third week. In three patients the course of cortisone therapy was intentionally discontinued at the end of the first week, but in two of these patients it was resumed after several days. Cortisone was administered parenterally in patients who were comatose or who had difficulty in swallowing. In addition, when possible, each patient was given a low-salt diet, with 3 gm. of potassium chloride orally each day in divided doses. Serial observations were made of the electrocardiogram, hemogram, and urinalysis. Repeated daily determinations were made of the blood pressure and heart rate. Serum sodium and potassium levels were not followed. In all patients cortisone therapy was started within 48 hours after the onset of the cerebrovascular accident; in 22 of the 35 patients it was begun within 24 hours after the appearance of symptoms. In three patients (two with cerebral embolism and one with cerebral thrombosis) cortisone was administered after blockage of the stellate ganglion proved ineffective.

RESULTS

In 21 of the 35 patients in this series dramatic clinical improvement was noted within 24 hours after the commencement of cortisone therapy. There was not only a

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striking amelioration of paralytic signs and symptoms but also unquestionable benefit from changes in the mental, emotional, sensory, and psychomotor status. Conjugate deviation of the eyes, incoherent speech, dysarthria, and aphasia appeared to clear rapidly during cortisone therapy. The greatest effects were noted among those who were somnolent, stuporous, mentally depressed, or apathetic. In 19 patients so afflicted, these symptoms were replaced overnight by a keen alertness and sustained interest in personal progress. Accompanying these mental changes, there was noteworthy subsidence in the degree of paresis of affected extremities, as shown by significant increase in the range of motion and in the ability to perform various activities. Moreover, active rehabilitative measures were easily instituted after only one or two days of treatment as a consequence of the rapid recovery from acute mental disturbances, associated with improved motivation, psychomotor stimulation, and increased sense of well-being. The greatest clinical improvement in all cases occurred within the first 24 to 48 hours after cortisone therapy was started; thereafter, definite but more gradual return of function ensued. The most marked benefits from the drug were observed in the more severe cases of cerebral thrombosis and embolism; however, in four patients with complete flaccid paralysis of involved extremities, no improvement in motor power was noted in response to the drug, although unmistakable benefit in the psyche was apparent. Cortisone therapy was intentionally discontinued in three patients after approximately one week of therapy; in two of these paresis increased in the involved extremities after the drug had been withheld for two and three days respectively. The readministration of cortisone, however, was soon followed by improvement in the motor power of the affected limbs. No such rebound phenomenon was observed at the termination of therapy in any of the patients receiving cortisone continuously for the three week course. At the end of this period remarkable neurological recovery had occurred in 27 of the 35 patients in the total group. In these, residua consisted of mild to moderate weakness in the handgrip, mild foot-drop, lower facial paresis, and minor difficulties in speech and deglutition. No serious difficulties were encountered from the use of cortisone in this study.

COMMENT

It is acknowledged that a rapid and nearly complete recovery may occur after a cerebrovascular accident, with nothing more than symptomatic treatment. Nevertheless, the frequency of prompt and striking improvement in neurological symptoms in our patients with cerebral thrombosis or embolism during cortisone therapy must be regarded as more than coincidence. Cortisone appeared to convert the discouraged, apathetic, or bewildered hemiplegic to a cooperative, hopeful, and even mildly euphoric patient overnight. Clouded consciousness, stupor, and disinterest in surroundings were often replaced within 24 hours by a degree of alertness and insight not encountered at any time in apoplectic patients treated expectantly. The clinical impression obtained was that cortisone accomplished in one day what ordinarily might take several weeks with conservative treatment. These beneficial changes in the psyche of individual patients in response to cortisone seem indisputable and leave little doubt as to the value of the drug in this disorder. Moreover, the marked subsidence in paralytic signs and symptoms that frequently accompanied the striking mental changes may also prove to be directly attributable to the action of cortisone. Two of the three patients in whom cortisone therapy was prematurely stopped showed increasing paresis, with reversal of effect when therapy was resumed.

With cortisone therapy rehabilitative measures can be instituted with little difficulty after only one or two days of treatment because of the patient's alertness of mind and euphoria. The early employment of retraining methods undoubtedly played a part in the remarkable neurological recovery observed in most of these cases, but, since the major response was observed before the application of such measures, the effect of the cortisone on the apoplectic lesion in the brain itself should be considered. It is of interest that cortisone appeared to exert its maximum influence in the more seriously ill patients with cerebral thrombosis or embolism. Patients with milder cases responded satisfactorily, but the most dramatic effects were noted in patients with marked hemiparesis, aphasia, conjugate deviation of the eyes, and clouded consciousness. These findings support the impression that the immediate effects of cortisone are more marked in patients with the more extensive lesions of the brain in which local edema plays a prominent part. Obviously, any method capable of preventing or eliminating the interstitial edema that is an outstanding gross and microscopic characteristic of apoplectic lesions would preserve nerve cells and permit a greater degree of neurological recovery. The probability of such an effect from cortisone is further suggested by observations of its action on experimentally produced myocardial infarcts in animals.[12] Thus, in the treated animal there was a sharp line of demarcation between the area of infarction and the adjacent muscle, whereas in the control there was a broad, irregular zone of healing. Postmortem injection studies furthermore demonstrated a greater development of collateral circulation under the influence of cortisone. Similar observations on the incised brains of animals have demonstrated an inhibitory effect of the drug on interstitial edema.[11] Regardless of the explanation, administration of the drug appears to counteract some of the immediate effects of stroke due to cerebral thrombosis or embolism. In a disease that is commonly viewed with a fatalistic philosophy and treated at best with good nursing care, cortisone should prove a most valuable addition to therapy and a useful adjunct for early rehabilitation.

In the present series of cases no significant complications were observed from the administration of cortisone. In patients with diabetes mellitus the diabetes was easily controlled by meeting the increased demand for insulin. Clinical signs of sodium retention were not observed, and hypertension was not aggravated by the use of cortisone. Although well over 100 cases of cardiovascular or cerebrovascular disease have been treated to date with cortisone by the authors,[14] no thrombotic incident has oc-

14. Russek and others.[9] Russek, H. I.; Russek, A. S.; Doerner, A. A., and Zohman, B. L.: Cortisone in the Treatment of Shoulder-Hand Syndrome Following Acute Myocardial Infarction, A. M. A. Arch. Int. Med. **91**: 487 (April) 1953. Russek, H. I.; Zohman, B. L., and Russek, A. S.: Risk of Thromboembolic Complications from Cortisone Therapy, Am. Heart J. **47**: 653 (May) 1954.

curred in any patient during the course of therapy or in the immediate post-treatment period. This experience in patients with obvious thrombotic tendencies and with advanced vascular disease does not confirm the alleged risk of thromboembolic complications from the use of this drug.[15]

SUMMARY AND CONCLUSIONS

Various attempts have been made to improve the cerebral circulation in patients with apoplectic stroke, in the hope of decreasing neurological residua. The uncertain responses with such methods have left no alternative to expectant therapy. Inasmuch as cortisone has been found of value in the rehabilitation of hemiplegic patients, through its action in enhancing motivation and promoting a sense of well-being, it was considered logical to make a trial of the drug for the acute cerebrovascular accident. Moreover, since local cerebral edema is believed to be a contributory factor in the perpetuation of neurological signs, and since cortisone has been shown to retard the mesenchymal tissue response to various forms of trauma, additional benefit from cortisone seemed possible in this respect. With these objectives in mind, 35 cases of apoplectic stroke due to cerebral thrombosis or embolism were treated with this drug within 48 hours after the onset of symptoms. Cortisone produced striking effects in 21 of the 35 patients under this regimen, and remarkable neurological recovery had occurred in 27 patients by the end of the third week of cortisone administration.

Cortisone is a valuable addition to the therapy of acute cerebral thrombosis or embolism. The drug appears to offer a dynamic approach to limiting the assault of a disease that, until now, has been viewed, at best, with expectancy, and, at worst, with defeatism. No significant untoward effects from cortisone were noted in this study.

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TOXEMIA OF PREGNANCY AS AN ETIOLOGICAL FACTOR IN HYPERTENSIVE VASCULAR DISEASE

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Although many reports have appeared describing follow-up findings in thousands of patients with previous toxemia of pregnancy, no clear-cut answer can be found to the question of whether toxemia of pregnancy is an etiological factor in the development of permanent hypertensive vascular disease. The variation in available data is illustrated by the fact that previous reports have placed the incidence of hypertension following toxemia from 0 to 78%. The average reported incidence following preeclampsia is 45%, and that following eclampsia is 22.5%, approximately one-half as much. This tremendous variation might be explained in part by the lack of uniformity of criteria for a diagnosis of toxemia and post-toxemic hypertension. The reported level of blood pressure constituting hypertension has varied from 130/70 to 170/100 mm. Hg. Today most investigators consider 140/90 mm. Hg as the dividing line between a normal blood pressure and hypertension. Master, Dublin, and Marks [1] have shown that the level of blood pressure considered to be normal rises with increasing age and that it is incorrect to say that a blood pressure of 140/90 mm. Hg constitutes hypertension for all age groups. Even though considerable confusion exists regarding post-toxemic hypertension, interpretation of the available data tends to fall into two general schools of thought. The evidence in favor of the theory that toxemia of pregnancy leads to permanent hypertension is vastly more abundant and overwhelming than the evidence in support of the theory that it does not lead to permanent vascular damage.

LITERATURE ON TOXEMIA, PREECLAMPSIA, AND ECLAMPSIA

Among the early reports suggesting that hypertension followed toxemia was that of Harris,[2] who in 1924 reported that of 55 women with preeclampsia 60% showed signs of chronic hypertensive renal disease one year later. Peckham [3] found that 22.1% of 77 women who had eclampsia one year previously had "chronic nephritis." This he thought represented sequelae to the previous toxemia. He recognized the fact that more damage occurred after severe preeclampsia than after mild preeclampsia. The diagnosis of chronic nephritis was made on the presence of hypertension and proteinuria. We now know that this probably was not chronic nephritis in the true sense but chronic vascular renal disease. There is general agreement that chronic glomerulonephritis is a rare complication of pregnancy. The work of Chesley on the problem of post-toxemic hypertension has been perhaps the most outstanding. His results are especially reliable because of his intense interest in this subject for many years and the thoroughness with which his studies were done. In 1941 he reported

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that the gross incidence of hypertension following nonconvulsive toxemia was 53% and the recurrence rate of toxemia was 46%.[4] Of special interest are the repeated follow-up findings among patients with eclampsia treated over a period of 15 years at the Margaret Hague Hospital. In 1941 Chesley and Somers [5] reported that only 17.5% of these patients had permanent hypertension. Seven years later Chesley, Somers, and Vann [6] found the incidence of permanent hypertension in 245 patients with previous eclampsia to average 15%. The average rate of recurrence of toxemia in this series was 44.7%, with eclampsia recurring in only 2.3%.

Peters [7] has said that "toxemias of all kinds leave behind them marks, usually in the vascular system that cannot be eradicated." The idea that anoxia, developing as a result of prolonged vasospasm, leads to permanent, irreversible structural damage to the vessel wall has been accepted by many, including Eastman, Page, and Chesley. Glomerular lesions in acute toxemia have been observed and described as a thickening of the basement membrane. Page and Cox [8] examined the kidneys of eight patients dying with toxemia and seven patients with previous toxemia; he found the same glomerular damage in both groups. This constitutes evidence of structural damage that did not revert to normal. Govan, however, reported that such changes were also found in the kidneys of patients dying of nontoxemic disease during pregnancy.[9]

The following factors are recognized as influencing the development of permanent hypertension following toxemia: family history, height of blood pressure during the toxemia, state of gestation at which toxemia developed, parity, age at time of toxemia, age at time of follow-up examination, duration of toxemia, and the weight of the patient. Of these, we feel that the most important are the duration of the toxemia and the age at the time of the follow-up examination. It has been shown repeatedly that the incidence of permanent hypertension increases directly with the duration of the toxemia.[10] Page [11] believes that the duration is important and says that a moderate preeclampsia of three weeks' duration will produce more damage than a severe preeclampsia of one week's duration. It is generally agreed that after three weeks' duration the incidence of permanent hypertension rises rapidly and that the earlier in pregnancy toxemia develops the more likely the patient is to be left with permanent hypertension. This is probably because those developing toxemia early will be treated longer in order to obtain a viable fetus. This still points to duration as the significant factor. An increasing percentage of pateints will become hypertensive if followed for many years. Without consideration of the effect of age, erroneous conclusions could be drawn from long-range follow-up examinations showing small increases in permanent hypertension.

The chief advocate of the other side of this question has been Dieckmann. For 20 years he has contended that toxemia does not produce permanent hypertension and that, if hypertension, albuminuria, and edema persist for two weeks despite adequate treatment, the disease is not preeclampsia but essential hypertension.[12] Dieckmann delays the final diagnosis until the follow-up examination, and, if the patient is found to have hypertension or albuminuria, the diagnosis then becomes chronic vascular renal disease regardless of the clinical picture during the acute episode. He goes so far as to say that the convulsions in such a situation are possibly from hypertensive encephalopathy. In 1952, Dieckmann, Smitter, and Rynkiewicz [13] published a report reviewing the factors influencing recurrent toxemia and post-toxemic hypertension but did not prove the contention of the title, "Pre-Eclampsia-Eclampsia Does Not Cause Permanent Vascular Renal Disease." Some investigators have written reports supporting Dieckmann's theory. Theobald showed that there was no significant difference in deaths between parous and nulliparous women as a result of cardiovascular renal disease. Barnes and Browne [14] and Isenhour, Kuder, and Dill [15] found little difference in hypertension among parous and nulliparous patients. However, Chesley's rebuttal to this is especially interesting. He points out that the 1% higher incidence of hypertension in parous women from the pooled data of these two reports is of the right magnitude to take in the effect of toxemia.[10]

Some investigators have said that patients with hypertension at the time of follow-up examination would have been so regardless of the pregnancy or the toxemia. Others concede that toxemia may precipitate hypertension earlier than would be expected, even though the individual was destined to become hypertensive. The idea that toxemia is an acute form of an underlying hypertensive tendency has also been expressed. We would agree with Chesley that the use of terms such as "latent hypertension" or "destined for hypertension" is to be questioned. How can one say that the development of hypertension in any patient is inevitable? It is recognized that the problems of recurrent toxemia and permanent hypertension are closely related. Few patients with repeated episodes of toxemia escape the sequelae connected with permanent vascular damage. Dieckmann has expressed the opinion that a recurrence of toxemia is not toxemia at all but vascular renal disease.

4. Chesley, L. C.; Somers, W. H.; Gorenberg, H. R., and McGreary, J. A.: An Analysis of Some Factors Associated with Post-Toxemic Hypertension, Am. J. Obst. & Gynec. **41**: 751, 1941.

5. Chesley, L. C., and Somers, W. H.: Eclampsia and Posteclamptic Hypertension: Follow-Up Study with Analysis of Factors Affecting Remote Prognosis, Surg., Gynec. & Obst. **72**:872, 1941.

6. Chesley, L. C.; Somers, W. H., and Vann, F. H.: A Further Follow-Up Study of Eclampsia, Am. J. Obst. & Gynec. **56**: 409, 1948.

7. Peters, J. P.: The Nature of the Toxemias of Pregnancy, J. A. M. A. **110**: 329 (Jan. 29) 1938.

8. Page, E. W., and Cox, A. J., Jr.: Renal Changes Following Toxemias of Late Pregnancy, West. J. Surg. **46**: 463, 1938.

9. Govan, A. D. T.: Renal Changes in Eclampsia, J. Path. & Bact. **67**: 311, 1954.

10. Chesley, L. C.: Toxemia of Pregnancy and Post-Toxemic Hypertension, Gynaecologia **139**: 259, 1954.

11. Page, E. W.: The Hypertensive Disorders of Pregnancy, Springfield, Ill., Charles C Thomas, Publisher, 1953.

12. Dieckmann, W. J., and Brown, I.: Do Eclampsia and Preeclampsia Cause Permanent Vascular Renal Pathology? Am. J. Obst. & Gynec. **37**: 762, 1939.

13. Dieckmann, W. J.; Smitter, R. C., and Rynkiewicz, L.: Pre-Eclampsia-Eclampsia Does Not Cause Permanent Vascular Renal Disease, Am. J. Obst. & Gynec. **64**: 850, 1952.

14. Barnes, J., and Browne, F. J.: Blood Pressure and the Incidence of Hypertension in Nulliparous and Parous Women in Relation to the Remote Prognosis of the Toxaemias of Pregnancy, J. Obst. & Gynaec. Brit. Emp. **52**: 1, 1945.

15. Isenhour, C. E.; Kuder, K., and Dill, L. V.: The Effect of Parity on the Average Blood Pressure and on the Incidence of Hypertension, Am. J. M. Sc. **203**: 333, 1942.

Other investigators have said that repeat toxemia is a different and perhaps milder syndrome than the initial syndrome.[16] Young,[17] on the other hand, stated that a recurrence of toxemia is in no wise different than the original syndrome. It is difficult for us to see how two episodes with identical manifestations could be considered as having any essential differences.

The problem of recurrent toxemia was first recognized by Gibson in 1921; however, the term recurrent toxemia was not applied until three years later, when Kellogg [16] described the syndrome that he thought was due to a renal insufficiency. This line of reasoning led to the introduction of the term "low reserve kidney" by Stander and Peckham. This was an unfortunate term, as it implied an inadequacy that did not exist. The thinking of this era was further expressed by one of us (P. C. S.),[18] who reported on four patients illustrating the problem of recurrent toxemia. The problems of toxemia of pregnancy and recurrent toxemia with their relationship to permanent vascular renal disease are so paramount that all centers with considerable experience in toxemia should analyze their experience in an effort to provide an answer to these complex questions. Chesley has said that he does not believe an answer will be found in the follow-up studies. We might add, perhaps, that there is no answer; however, out of such studies will come information that can be used as a prognosis for both infant and mother, as well as information as to the advisability of future pregnancies. It is the purpose of this report to focus attention on these problems and to add our experiences from the City of Memphis Hospitals.

MATERIAL

In an effort to eliminate the possibility of including patients with preexisting hypertension or previous toxemia in the study, only primigravidas with normal blood pressure in early pregnancy and negative cardiac histories were selected. These women were followed in our prenatal clinics and subsequently developed some degree of toxemia in their first pregnancy. Follow-up through successive pregnancies for 5 years was carried out in one group, and, in another, the patients were observed for 10 years. The factor of advancing age, therefore, could be appraised. The mean age at the initial pregnancy was 18 years for each group. A random sample of 340 hospital charts was selected for study on the basis of proved toxemia in the first pregnancy and follow-up of at least five years or more. After additional study, 101 of this number were discarded for lack of complete information. The remaining 239, it is felt, represent cases of pure toxemia of pregnancy that occurred in the first gestation of otherwise normal females. Data included the occurrence of repeated bouts of toxemia, the incidence of elevated blood pressure without albuminuria or edema, and the occurrence of permanent hypertension following pregnancy. The number of pregnancies and the frequency of repeated toxemia were correlated with age and the finding of persistent hypertension. No attempt was made to correlate duration of toxemia with the development of residual hypertension. No racial distinction was attempted, but more than 95% of the total were Negroes.

The principal difficulty in considering recurrent toxemia of pregnancy as a factor in the etiology of essential hypertension is the necessity of establishing a base of comparison. A certain number of any group would develop permanent hypertensive vascular disease with or without toxemia of pregnancy. The contributions of Master, Dublin, and Marks [1] are the best data yet available as to hypertensive expectancy. In their studies of more than 7,000 women in industry, many of whom were nulliparas, it was established that an increasing percentage of women develop essential hypertension in the advancing decades of life. Blood pressure of 140 mm. Hg systolic and 90 mm. Hg diastolic or above was used by Master as the criterion for the diagnosis of hypertension, at ages 25 to 29 years. He found that 8.4% of his patients had persistently elevated blood pressure. The mean age of our patients at the time they were found to have residual hypertension was 26 years. In the absence of an ideal group, they will be compared, therefore, with Master's group of the same age.

FINDINGS

Five Year Group.—A total of 142 tabulations was made on patients followed for five years after the initial episode of toxemia. Of this number, 59 had mild preeclampsia in their first pregnancy, 63 had severe preeclampsia, and 20 had eclampsia. The fact that twenty of 142 patients had eclampsia showed the apparent result of random selection; such a high percentage of convulsive toxemia does not reflect the true incidence of this disease in our patients. Of the entire group, 35.2% had recurrent toxemia in subsequent pregnancies. Fourteen per cent had blood pressure elevations in excess of 140 mm. Hg systolic and 90 mm. Hg diastolic but had no edema or albuminuria. These were considered in a separate group because they did not fulfill the diagnostic criteria of toxemia yet it was felt that the temporary hypertensive episode might be of prognostic importance. A total of 50% of the group, therefore, had recurrent temporary hypertension. Fifty-three patients, or 38% of the group, had no recurrent toxemia or hypertension. Seven patients had no further pregnancies. Ten patients, or 7% of the total tabulated, were found to have a permanent elevation of blood pressure at the end of the five year period.

Table 1 shows the correlation between the severity of the initial episode of preeclampsia and the incidence of recurrent toxemia. Furthermore, permanent hypertension occurred in only 3.4% of those having mild preeclampsia, while those with an initial diagnosis of severe preeclampsia composed 11.1% of the group. When the initial diagnosis was eclampsia, this trend was reversed, and only 5% of the patients eventually developed essential hypertension. The implication is that duration of toxemia has a bearing on the development of permanent hypertension. This has been demonstrated by others but is not included in our data, for many of the patients herein reported on were followed in outlying clinics and

16. Kellogg, F. S.: Recurrent Toxemia of Pregnancy, Am. J. Obst. & Gynec. **8**: 313, 1924.
17. Young, James: The Prognosis and Treatment of Eclampsia and Albuminuria, with Special Reference to Risk of Recurrence in Subsequent Pregnancies, Brit. M. J. **1**: 91, 1929.
18. Schreier, P. C.: A Discussion of the Recurrent Toxemias of Pregnancy, Mississippi Doctor **11**: 29, 1934.

the specific time of onset of symptoms could not be reliably obtained.

Ten Year Group.—Ninety-seven tabulations were made on patients followed for 10 or more years. Of these, 67 had mild preeclampsia, 24 had severe preeclampsia, and 6 had eclampsia (table 2). Of the entire

TABLE 1.—*Correlation Between Severity of Preeclampsia, Duration of Toxemia, and Development of Permanent Hypertension in 142 Patients Followed for Five Years*

	Mild Preeclampsia		Severe Preeclampsia		Eclampsia		Total	
	No.	%	No.	%	No.	%	No.	%
Recurrent toxemia	18	30.5	27	42.8	5	25	50	35.2
Recurrent hypertension	10	16.9	9	14.3	2	10	21	14.8
Recurrent eclampsia	..	....	..	....	1	5	1	0.7
Toxemia or hypertension not recurrent	25	42.3	18	28.6	10	50	53	38.0
No further pregnancies	4	6.9	2	3.2	1	5	7	4.9
Permanent hypertension	2	3.4	7	11.1	1	5	10	7.0
Total	59		63		20		142	

group, 30.9% had recurrent toxemia in later pregnancies and 11.3% had a temporary elevation of blood pressure. Persistent hypertension was found in 17.5%. This finding was no surprise, for the mean age in this group was higher than that of the five year group. The simple factor of advancing age would explain part of this increase over the 7% in the first group found with residual hypertension. Again, there was a definite correlation between severity of the initial attack and the development of permanent hypertensive disease. Whereas 10.4% of patients with mild preeclampsia developed hypertensive disease later in life, 41.6% of those with initial severe preeclampsia showed evidence of permanent hypertension at the end of 10 years. None of the 6 patients having eclampsia were later found to have essential hypertension.

For the two groups combined (table 3) it was found that 33.5% had recurrent toxemia and 13.4% a temporary recurrent hypertension without edema or albuminuria. Twenty-seven patients were found to have permanent hypertension. This represents 11.3% of all cases studied and may be compared to the findings of Master of 8.4% of women between the ages of 25 through 29 years with hypertension. This difference, therefore, represents an increase in incidence of hypertensive disease in our patients over that expected and would be greater if we were able to eliminate those in the control group who had previous toxemia of pregnancy.

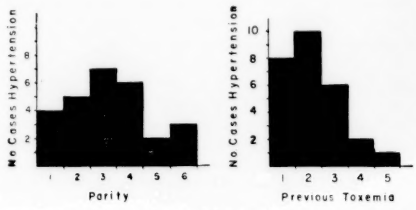
TABLE 2.—*Correlation Between Severity of Preeclampsia, Duration of Toxemia, and Development of Permanent Hypertension in Ninety-Seven Patients Followed for Ten Years*

	Mild Preeclampsia		Severe Preeclampsia		Eclampsia		Total	
	No.	%	No.	%	No.	%	No.	%
Recurrent toxemia	29	29.9	9	37.5	1	16.6	30	30.9
Recurrent hypertension	11	16.4	..	....	..	....	11	11.3
Recurrent eclampsia	..	....	..	....	..	....	..	....
Toxemia or hypertension not recurrent	26	38.8	5	20.8	4	66.6	35	36.1
No further pregnancies	3	4.4	..	....	1	16.6	4	4.1
Permanent hypertension	7	10.4	10	41.6	..	....	17	17.5
Total	67		24		6		97	

Patients Developing Permanent Hypertensive Disease.—A more detailed study of the 27 patients who developed essential hypertension after having had toxemia is revealing. The median age was 26 years at the time permanent hypertension became evident. It is entirely possible that some of these patients developed sustained hypertension prior to the time they were seen in our clinic during their subsequent pregnancies, but, because we have no proof other than the information given in the charts, this is the date and the age recorded. In other words, any error would be in the direction of their having developed hypertension at an earlier age than was noted. It has been our clinical observation that patients who develop permanent hypertension do so most often after several episodes of toxemia. In the figure it can be seen that hypertension occurred more frequently after the patient was exposed to three or more pregnancies and two or more episodes of toxemia. Of the 27 patients, 9 had an initial episode of mild preeclampsia, 17 had severe preeclampsia, and 1 had eclampsia. This means that 6.9% of the total number with mild preeclampsia developed hypertension as compared with 19.5% of those with severe preeclampsia and 5.0% of those with eclampsia. It would appear, therefore, that hypertension is three times as likely to follow severe preeclampsia than it is the milder form of the disease. By contrast, eclampsia very infrequently results in sustained elevations of blood pressure.

TABLE 3.—*Comparison of Findings in Five and Ten Year Group*

	5 Yr. Group		10 Yr. Group		Total	
	No.	%	No.	%	No.	%
Recurrent toxemia	50	35.2	30	30.9	80	33.5
Recurrent hypertension	21	14.8	11	11.3	32	13.4
Recurrent eclampsia	1	0.7	..	....	1	0.4
Toxemia or hypertension not recurrent	53	38.0	35	36.1	88	36.8
No further pregnancies	7	4.9	4	4.1	11	4.6
Permanent hypertension	10	7.0	17	17.5	27	11.3
Total	142		97		239	



Relationship of hypertension to occurrences of pregnancy and toxemia.

SUMMARY AND CONCLUSIONS

A group of 239 patients with "pure" toxemia of pregnancy, developed during their first gestation, has been followed for periods of from 5 to 10 years. All but 11 had subsequent pregnancies. A high percentage suffered recurrent toxemia, and 27, or 11.3% of the total, were found to have permanent hypertensive disease. The expected incidence of hypertension for young women of this age is only 8.4% according to Master and his group. This figure is, in all likelihood, higher than the true inci-

dence of hypertensive disease in women of this age. It must be appreciated that many of the observations of Master and co-workers were made at a time when these women were applying for jobs, a time when slight elevations of blood pressure are common. It is concluded, therefore, that toxemia of pregnancy results in an increased incidence of hypertensive disease and that the more severe the initial illness, excluding eclampsia, the more likely there is to be eventual permanent vascular damage. Repeated pregnancies and recurrent episodes of toxemia may have some relationship to the later occurrence of hypertensive disease, in that most women developing permanent elevation of blood pressure did so after three pregnancies and at least two bouts of toxemia.

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ACCIDENT PREVENTION IN CHILDHOOD—THE KEROSENE HAZARD

Hugh A. Carithers, M.D., Jacksonville, Fla.

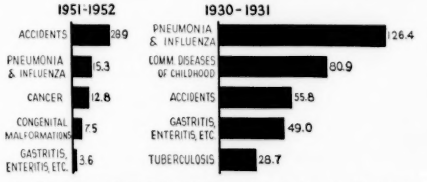
Accidents have become the leading cause of death among children over one year of age.[1] The prominence of accident mortality is due in part to the widespread use of chemotherapeutic agents and immunization procedures, which have helped control communicable diseases and many other acute infections in childhood. Pneumonia, diarrhea, and enteritis—at one time the commonest causes of death among young children—have been gratifyingly controlled. In fact, pneumonia, diarrhea, measles, diphtheria, whooping cough, scarlet fever, meningitis, and poliomyelitis, all combined, do not kill as many American children as do accidents.[2] One-third of all deaths in children at the present time result from accidents, while in 1900 accidents caused only one-twentieth of the deaths occurring in childhood.[3]

There has been, in recent years, some reduction in deaths from accidents among children, but to a much less extent than from diseases (see figure). Since 1930 deaths from communicable diseases have been reduced 97%, from gastroenteritis 93%, from appendicitis 91%, from tuberculosis 89%, and from pneumonia and influenza 88%, but from accidents only 48%. This reduction in accidents does not necessarily mean, however, that children are being injured less frequently. Today physicians are saving more who have been burned, poisoned, crushed, or mangled. Over one-half of all fatal accidents in childhood occur among children under 5 years of age. Dietrich [3] emphasized that the greatest efforts at accident prevention should be made in this age group, not only because these children have more accidents, but because education for safety is more fruitful when directed toward young children. Accidents in the 1 to 4 year age group have risen in prominence as a cause of death. In 1930-1931 pneumonia, influenza, and the common communicable diseases of childhood ranked above accidents with the gastrointestinal diseases not far behind. In 1951-1952 accidents were in first place, almost doubling in number the deaths from pneumonia and influenza, the next ranking group. This, however, is not the whole picture. It has been estimated by authorities [4] on the accident problem that for every fatal accident among children there are at least 100 nonfatal accidents, 4 of which result in some permanent disability.

The table shows the distribution of the principal types of accidents among children aged 1 to 4 years. Although motor vehicles, burns, drowning, and falls all precede poisonings as causes of death, this cause nevertheless gives rise to an extremely important aspect of the problem and illustrates its magnitude. Poisonings are most likely to occur in children of ages 1 through 2 (see table). This is the age of inquisitiveness when some children will eat or drink almost anything.

KEROSENE POISONING

One of the commonest, though not most fatal, types of poisoning among young children is caused by the consumption of petroleum oils, principally kerosene. Bain [5] in her study of accidental poisonings in children under 5 years of age in the United States found that petroleum products accounted for 25% of accidental poisonings in this age group. The Florida Children's



Leading causes of death in children aged 1 to 4 years. Death rates per 100,000. Cancer includes leukemia and Hodgkin's disease.

Commission in cooperation with the Florida chapter of the American Academy of Pediatrics and the Florida Pediatric Society recently sent a questionnaire to 156 hospitals in Florida in an effort to determine the incidence of poisonings within the state caused by ingestion of volatile oils. Of 90 hospitals returning the questionnaire, 79 accepted children who might be poisoned. In 1953, 229 children, all under 6 years of age, were admitted to 45 hospitals for treatment because of poisoning by volatile oils. Nearly all of these children were

Read before the Eighth Clinical Meeting of the American Medical Association, Miami, Fla., Dec. 1, 1954.

The statistics in the figure and table are based on experiences of the Metropolitan Life Insurance Company, Industrial Department.

1. Armstrong, D. B., and Cole, W. G.: Can Child Accidents Be Prevented in Your Community? Am. J. Pub. Health **39**: 585-592 (May, pt. 1) 1949.

2. Wheatley, G. M.: Accident Prevention and the General Practitioner, Postgrad. Med. **10**: 442-445 (Nov.) 1951.

3. Dietrich, H. F.: Prevention of Childhood Accidents: What Are We Waiting For? J. A. M. A. **156**: 929-931 (Nov. 6) 1954.

4. Footnotes 1 and 2.

5. Bain, K.: Death Due to Accidental Poisoning in Young Children, J. Pediat. **44**: 616-623 (June) 1954.

poisoned by drinking kerosene. In addition, 78 children were treated as outpatients in 18 hospitals, and it was estimated by 24 hospitals that 288 others probably were treated. Thus a total of over 500 Florida children were treated in that one year for volatile oil poisoning, caused in nearly all cases by ingestion of kerosene. There was only one death among this group. An examination of data from the bureau of vital statistics of the Florida State Board of Health, however, showed that four other children met death in the state in 1953 from drinking petroleum products. They were not treated in the reporting hospitals. These fatalities indicate, in all probability, a much larger incidence of this type of poisoning than was discovered as a result of the questionnaire.

A detailed study was made of all cases of poisoning from petroleum oil products recorded at one of the reporting hospitals, the Duval Medical Center, Jacksonville. During 1953, 76 patients were treated on the charity children's service, one of whom died. The mean

Percentage Distribution, by Principal Types, of Deaths from Accidents Among Children One to Four Years of Age, 1951-1952

Type of Accident	Age, Yr. 1-4	1	2	3	4
Accidents—total no. of deaths	753	203	189	188	173
Death rate per 100,000	28.9	....*	....*	....*	....*
	% of Deaths				
Motor vehicle—total	37.2	26.6	31.7	45.2	46.8
Run over or hit by motor vehicle	26.8	17.7	22.2	31.4	37.6
Burns and conflagrations—total	19.9	24.6	21.2	18.6	14.4
Conflagrations	10.7	11.8	13.2	10.1	7.5
Burns (excluding conflagrations)	9.2	12.8	8.0	8.5	6.9
Liquid, steam, hot substances, etc.	4.9	8.9	6.3	2.7	1.2
Drowning	15.4	12.3	17.5	13.3	19.1
Falls	6.0	5.4	7.4	6.4	4.6
Poisoning by liquids or solids	5.2	7.4	9.5	1.6	1.7
Choking by objects or food	4.4	9.9	3.2	2.7	1.2
Absorption of poisonous gas	1.3	1.5	2.1	0.5	1.2
Firearms	0.8	0.5	....	1.6	1.2
All other and unspecified	9.8	11.8	7.4	10.1	9.8

* Not available.

hospital stay of these children was 4.53 days. The per diem cost of patient care in this hospital in 1953 was $12.36. If, on the basis of this per diem cost and this average hospital stay, one computes the cost of hospitalizing the known 229 patients treated in Florida hospitals in 1953, he finds that hospitalization cost approximately $12,800. The cost in terms of psychological trauma to the young child and his parents, of course, cannot be measured.

Kerosene ingestion is not a type of poisoning confined to the South, although it is probably commoner in this area than in other sections of the country. In June, 1953, the committee on accident prevention of the American Academy of Pediatrics reported a survey of 507 cases of accidental poisoning that occurred throughout the United States. In this series kerosene was the second commonest toxic agent, comprising 16% of the total.[6] A review of 375 cases of poisoning recorded in six Chicago hospitals during a recent nine month period, made by the poisoning control committee of the Illinois chapter of the American Academy of Pediatrics, disclosed that in 46 cases, or 12%, the cause of the poisoning was the ingestion of petroleum distillates, principally kerosene.[7]

In the Jacksonville area kerosene is widely used for heating homes as well as for cooking. Consequently, a decided rise in cases of poisoning during the winter months would be expected, but for many years there have been numerous cases in the wards during the summer. Throughout 1953, for example, the distribution of kerosene-poisoning cases at the Duval Medical Center was fairly equal, as shown in the following tabulation:

January	5	July	6
February	4	August	7
March	5	September	2
April	7	October	6
May	10	November	12
June	5	December	8

Although there may be more kerosene in the child's environment in the winter, it is during the summer that he will be more likely to drink it because of thirst. This observation emphasizes an important principle in the prevention among young children of poisoning from all toxic liquids: active youngsters should be given fluids between meals, especially in hot weather, so that thirst will not be the stimulus to the consumption of liquid poison.

It is not the purpose of this paper to present a complete discussion of kerosene poisoning. Certain controversial features of the disease, however, are reviewed here because they may have a bearing on survival. Deaths from kerosene poisoning may be due to two causes: (1) aspiration with pneumonitis, subsequent pulmonary edema, and secondary infection of the lungs, and (2) toxic effects on one or more organs or systems of the body, in particular the liver, stomach, and intestinal tract, and especially the brain. The lungs are almost invariably involved in severe cases, and it is now believed that aspiration is far more important than is absorption in causing damage to the lungs. In experimental animals pulmonary damage can be produced by the injection of kerosene intravenously. Some experimenters believe it also can be produced by injection of the oil into the gastrointestinal tract when the possibility of aspiration is removed.[8] Practically speaking, blood levels in man probably never would reach those produced in experimental animals when kerosene is injected intravenously. If there is pulmonary irritation from absorption alone, it is probably not great. Children who have consumed more than several ounces of kerosene quickly show signs of toxicity with drowsiness and later coma. Kerosene contains hydrocarbons commonly used in some anesthetics, but varies considerably in coma-producing ability because of variability in refining processes.

TREATMENT

The immediate problem facing all physicians treating children who have consumed kerosene is whether or not to aspirate the stomach. The condition of the child, and to a less extent the history, will serve as a practical guide

6. The Year Book of Pediatrics (1954-1955 Year Book Series), edited by Gellis, S. S., Chicago, the Year Book Publishers, Inc., 1954, p. 397.
7. Poisoning Control Committee, Illinois Chapter of American Academy of Pediatrics: Personal communication to the author.
8. Bologna, N. A., and Woody, N. C.: Kerosene Poisoning, New Orleans M. & S. J. **101**: 256-260 (Dec.) 1948.

in each individual case. If one can be sure only a small amount was swallowed, if vomiting has occurred, and if there are no signs of toxicity with drowsiness, the child is probably best left alone. On the other hand, if toxic signs, especially with dizziness, drowsiness, or coma, are present, or if someone actually saw him drink a considerable quantity, careful lavage of the stomach, with the head and chest lowered, is indicated. Pinching off of the tube, quick withdrawal, and, if possible, avoidance of vomiting during lavage are important points in technique.

ACCIDENT PREVENTION

This brief report on poisoning from petroleum distillates in one state serves not only to illustrate the magnitude of the problem of poisoning among children but to stress particularly the importance of accidents, of all types, as a cause of morbidity and mortality among the young. No attempt has been made to discuss many important facets of the accident problem, such as accident proneness, for example. The fact that 20% of the accident victims, in some groups studied, sustained over 50% of the accidents is important to physicians.[9] Accident repeaters should have a physical appraisal with special emphasis on vision, hearing, orthopedic status, and neurological integrity. Detailed psychological investigation may be necessary for those having no physical basis for repeated accidents.

All physicians who give medical care to children have an opportunity, indeed a responsibility, to promote accident prevention among them. General practitioners, who provide most of the medical care children receive, have especially good opportunities to promote safety. Becoming safety-minded and teaching safety to parents and children should entail little, if any, additional burden to the busy physician. Some specific suggestions of proved value in accident prevention that doctors can make a part of their routine practice are given below.[10]

1. Education of parents in accident prevention should begin before the child learns to walk. Mention the common home accidents at well-child check-ups, whether in private office or clinic. Distribute pamphlets on accident prevention; they are available for the asking from several leading insurance companies and the National Safety Council. When such literature is left on waiting room tables, it does little good, but when given to a parent with firm instructions, "Read this," it can be of value. 2. On calls in the homes of children, observe unsafe conditions and suggest corrective measures. 3. When treating a patient for any accidental injury, inquire into the cause of the accident and tactfully point out how a recurrence can be prevented in the future. There is no better time than while treating an accidentally injured child to make the parents and the child himself aware that safety measures are of value. 4. In prescribing drugs, stress the dangers of injudicious use and careless storage. This is also a good time to inquire about the handling of harmful cleaning agents, insecticides, and fuel in the home. 5. When a child has repeated accidents, make a complete appraisal of the patient and his environment in an attempt to find the cause. Public health nurses may be of value in such a study. 6. As a guardian of public health and well-being, be a leader in community projects directed toward safety and accident prevention.

2000 Park St. (4).

9. Gleason, M. N.: The Accident-Prone Patient, New York J. Med. 48: 2168-2170 (Oct. 1) 1948.
10. Carithers, H. A.: Accidents Among Florida Children Leading Cause of Death, J. Florida M. A. 39: 97-101 (Aug.) 1952.

CLINICAL NOTES

NEW METHOD FOR LOCAL ANESTHESIA IN PERORAL ENDOSCOPY

PRELIMINARY REPORT

Hubert J. Adler, M.D., Phoenix, Ariz.

Current methods of local anesthesia for peroral endoscopy are unsatisfactory because of (1) the toxic results of the effective surface anesthetics, (2) the discomfort—to put it mildly—to the patient caused by peroral endoscopies under local anesthesia, and (3) the lack of relaxation of the structures underlying the mucosa of the pharynx and larynx. A surface anesthetic does not relax the deeper structures such as the base of the tongue and the cricopharyngeus muscle (the "pinchcock of the esophagus"). The upper front teeth and their gums remain sensitive to the unavoidable pressure of the endoscope. The patient with long upper teeth and/or a short, muscular neck is a dreaded prospect for peroral endoscopies.

I have devised a method whereby the conventional surface anesthetics can be avoided almost completely. The usual preoperative medication (barbiturates, narcotics, and atropine) is given. The area to be described below is anesthetized by injecting a procaine-hyaluronidase mixture (150 turbidity-reducing units to 30 cc. of 1% procaine) or a 2% lidocaine (Xylocaine) hydrochloride solution and by instilling a 5% hexylcaine (Cyclaine) hydrochloride—2% tripelennamine (Pyribenzamine) mixture (ratio of 3:1) into the tracheobronchial tree.

The superior laryngeal nerve is injected first. If one prefers the external approach, the space between the cranial border of the thyroid cartilage and the hyoid bone is palpated. A 1½ in. 23 gauge needle is inserted perpendicularly to the skin 0.5 cm. anteriorly to the superior cornu of the thyroid cartilage until a resistance (the thyrohyoid membrane) can be felt (see table, injection 1). Then the greater palatine canal is injected. The oral opening of this canal lies about 1 cm. medially to the second molar and 1 cm. anteriorly to the border between the hard and soft palate. It suffices to enter the greater palatine canal for a depth of 1.5 cm. This reaches the anterior, middle, and posterior palatine nerves, resulting in anesthesia of the hard and soft palate, uvula, and anterior pillars (see table, injection 2a). An alternate method is to inject the mucosa over-

From the Veterans Administration Hospital.

lying the oral opening of the greater palatinal canal without entering the canal proper (injection 2b). The ensuing anesthesia covers a smaller area than the one produced by injection 2a. Injection 2b should be supplemented with an injection into the incisive fossae above the upper incisor teeth (injection 3). This mitigates the pressure of the endoscope on the upper front teeth.

The glossopharyngeal nerve is injected by piercing the anterior palatinal pillars 1 cm. lateral to their free border and carrying the tip of the needle to a depth of about 1.5 cm., where a resistance can be felt. This usually relaxes the base of the tongue (injection 4). Should the base of the tongue remain sensitive, both lingual tonsils ought to be injected (injection 5). The base of the tongue is then depressed downward and forward on one side. By increasing the pressure slowly the pharyngoepiglottic ligament can be brought into view in most cases. This structure connects the lateral wall of the hypopharynx with the lateral border of the epiglottis. The superior laryngeal nerve runs about 1 cm. below the free border of this ligament. It is ballooned out by injecting 1 cc. into its pharyngeal root (injection 6). Relaxation of the cricopharyngeal muscle can be achieved by injecting the posterior wall of the hypopharynx just behind the epiglottis. This helps greatly in esophagoscopies (injection 7).

Pharyngolaryngeal Block

Injection No.	Nerve Injected	Site of Injection	Area of Anesthesia	Type of Anesthesia	Dosage, Cc.	Type of Needle	Remarks
1	Superior laryngeal	Hyothyroid ligament	Epiglottis and larynx	Block	3	1 in., 23 gauge	Alternate or supplement to injection 6
2a	Anterior, middle, and posterior palatine	Greater palatine canal	Hard and soft palate, uvula, and anterior pillars	Block	½	Curved tonsillar	Alternate to injection 2b
2b	Middle and posterior palatine	Lesser palatine foramen	Soft palate and anterior pillars	Block	½	Curved tonsillar	Alternate to injection 2a
3	.....	Incisive fossa	Upper incisor teeth	Infiltration	0.2	½ in., 26 gauge	Not needed if injection 2a is given
4	Glossopharyngeal	Hilar area of palatinal tonsil	Anterior pillars, tonsil, posterior pillars, and base of tongue	Block	2	Straight tonsillar or 2½ in., 23 gauge	.....
5	Terminals of glossopharyngeus	Lingual tonsil	Base of tongue and lingual aspect of epiglottis	Infiltration	2	Curved tonsillar	Supplement to injection 4
6	Superior laryngeal	Pharyngoepiglottic ligament	Epiglottis and larynx	Block	1	Curved tonsillar	Alternate or supplement to injection 1
7	.....	Posterior wall of hypopharynx	Hypopharynx and cricopharyngeal muscle	Infiltration	1	Curved tonsillar	For esophagoscopy

It is not necessary to wait between injections. In order to save time, the instillation of the above-described hexylcaine-tripelennamine mixture can be given after injection 1. A dose of 0.25 cc. is administered through the glottis. Another dose should be instilled after all the injections. The entire procedure takes about 12 minutes. I have named this method pharyngolaryngeal block (p-l block for short).

SUMMARY

Pharyngolaryngeal block, an anesthetic method for peroral endoscopies, gives a safe and complete (deep) anesthesia.

Seventh Street and Indian School Road.

CAROTID EXPLORATION FOR HEMIPLEGIA FOLLOWING MITRAL VALVE SURGERY

David P. Boyd, M.D., Boston

The incidence of cerebral embolization during the performance of mitral valve surgery has been estimated at 5%.[1] Bailey [2] and his associates have found that they can greatly reduce this incidence by intermittent carotid occlusion during the surgical procedure. It may be that in the majority of instances cerebral embolization occurs in the brain. It had been our assumption that this was so and that nothing could be done about the hemiplegia that occasionally occurs during or shortly after this type of operation. That this assumption on our part was at least occasionally incorrect is borne out by the following case report.

REPORT OF A CASE

A woman, aged 39, knew she had rheumatic fever for some years. She never had cardiac decompensation nor was there any history suggesting embolism. Digitalis therapy was used for several years for auricular fibrillation. After careful medical study she was considered to have grade 2 to 3 mitral stenosis without major involvement of other valves and without significant mitral insufficiency. Mitral commissurotomy was recommended. At the time of operation no complications were encountered. Entry into the auricular appendage and into the auricle was carried out without difficulty, and a tight mitral stenosis with calcification was found. There was minimal regurgitation. No clots were palpable either in the appendage or in the auricle itself. Both anterior and posterior commissurae were readily fractured with the finger and an excellent mitral opening was obtained.

The patient was operated on in midafternoon, and in the early postoperative period, during which time special duty nurses were present, nothing alarming was noted. In the early morning on surgical rounds it was noted that the patient did not respond and that hemiplegia on the right was present. It did not occur to the examiners at that time to palpate her carotid arteries.

From the Department of Surgery, the Lahey Clinic.

1. Bailey, C. P., and others: Commissurotomy for Mitral Stenosis: Technique for Prevention of Cerebral Complications, J. A. M. A. **149**:1085-1091 (July 19) 1952.

2. Bailey, C. P.; Bolton, H. E., and Redondo-Ramirez, H. P.: Surgery of the Mitral Valve, S. Clin. North America **32**: 1807-1848 (Dec.) 1952.

Consultations with members of the departments of anesthesia and neurosurgery, however, with the idea of performing stellate ganglion block, brought out the fact that the left carotid was not pulsating. The patient was taken to the operating room at once, and with the patient under local anesthesia the left common carotid artery was exposed. Just below the bifurcation the artery was flaccid and soft. A Blalock clamp was applied at this level. An inch or two lower down the artery was fuller and firmer, suggesting an intraluminal clot. A catheter was passed around the proximal carotid artery and a longitudinal incision made in this region. A fresh blood clot immediately protruded and was removed; however, it was not until several additional pieces of clot had been aspirated from the lower common carotid down almost to the aorta that normal hemorrhage from the artery commenced. Back bleeding was profuse from the start. The incision in the vessel was closed with three interrupted silk sutures and the wound closed in layers in the usual manner. A good pulse was felt from this point on in the left superficial temporal artery. Anticoagulant therapy was instituted at once. The patient's cerebral status did not improve, and she died 24 hours after the second operation. Promptly after the second procedure, however, she performed voluntary movements of the right upper and lower extremities and at times seemed able to phonate and react to various stimuli.

COMMENT

It is probable that this carotid embolization or thrombosis occurred during the operation on the mitral valve or very shortly afterward. It is not surprising that after almost 24 hours of total interruption of one side, recovery did not take place. Despite the unfortunate outcome in this case, certain useful principles emerge and should be emphasized. Thus it seems reasonable to recommend that the anesthetist observe the common carotid pulsations frequently throughout the operation for mitral commissurotomy. The fact that thrombosis is not found in the appendage or in the auricle apparently is no guarantee against the development of postoperative thrombosis. In addition, the following specific recommendation is made, namely, that in cases of mitral commissurotomy a type of anesthesia be utilized that will permit the patient to awaken before he leaves the operating room. If hemiplegia is determined to be present, then carotid pulsations should be noted on the appropriate side. If there is the slightest question concerning the presence or absence of this pulsation, the artery should be explored. It may well be that occlusion of the internal carotid artery may occur in some cases at the bifurcation of the common carotid, and, even if pulsations are present in the common carotid and in the superficial temporal arteries, exploration of the carotid arteries should be considered.

SUMMARY AND CONCLUSIONS

Postoperative hemiplegia following operations on the mitral valve may be due to obstruction of the common carotid artery. This complication may also be caused by obstruction of the internal carotid artery at the bifurcation of the common carotid artery. The anesthetist should continually observe pulsations in the carotid arteries during the performance of the surgical procedure. In every case of mitral valvulotomy in which the complication of hemiplegia is demonstrated postoperatively, the carotid artery should be explored. All nurses, residents, and others concerned in the postoperative care of these patients should be thoroughly briefed relative to prompt recognition of this complication.

605 Commonwealth Ave. (15).

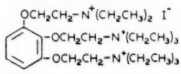
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

R. T. STORMONT, M.D., *Secretary.*

Gallamine Triethiodide. — $C_{30}H_{60}I_3N_3O_3$. — M.W. 891.56. — [*v*-Phenenyltris(oxyethylene)]tris[triethylammonium iodide].—Tri(diethylaminoethoxy)benzene triethyliodide.—The structural formula of gallamine triethiodide may be represented as follows:



Actions and Uses.—Gallamine triethiodide, a synthetic substituted quaternary amine compound similar in action to curare, is useful to relax skeletal muscle for the same purposes and with the same precautions as other curare-like agents. (See New and Nonofficial Remedies 1955, under the general statement on curare.) Unlike curare and its derivatives, gallamine triethiodide exhibits little action on autonomic ganglions. It is useful with general anesthesia to provide more complete muscular relaxation during surgical, manipulative, endoscopic, and intubation procedures. It is also used to prevent accidents during convulsive shock therapy and to reduce muscle spasm during nonoperative orthopedic procedures. Further observations are needed to confirm its usefulness in obstetrics and for the management of convulsions and chronic spastic states secondary to disease.

Like all potent curare-like drugs, gallamine triethiodide should be used only by those thoroughly familiar with such agents and only when facilities for intubation, artificial respiration, oxygen therapy, and administration of antidotes are immediately available.

Gallamine triethiodide may produce an allergic reaction in patients sensitive to iodine and care should be taken to avoid severe reactions of this type. The drug is absolutely contraindicated in patients with myasthenia gravis.

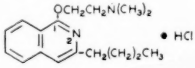
Dosage.—Gallamine triethiodide is administered by intravenous injection as an aqueous solution. The dosage should be individualized by careful observation of the patient. The theoretical initial dose is about 1 mg. per kilogram of body weight. For prolonged procedures, additional doses of 0.5 to 1 mg. per kilogram may be injected at intervals of 40 to 50 minutes. Like curare, its action is cumulative.

The drug is readily miscible with solutions of thiopental sodium. In conjunction with ether inhalation an-

esthesia, smaller doses are required than for other general anesthetics. The same antagonists that are effective against tubocurarine will interrupt the action of gallamine. Neostigmine methylsulfate, 0.5 mg. to 1.5 mg., is a useful antidote and atropine sulfate may be administered simultaneously to counteract the postganglionic effect of neostigmine. A larger dose of the antidote is needed when gallamine is used in conjunction with ether because the latter impedes removal of the drug. Antidotes should be used with caution in asthmatic patients sensitive to such drugs. Such adverse antidotal effect is also counteracted with atropine.

Lederle Laboratories Division, American Cyanamid Company, cooperated by furnishing scientific data to aid in the evaluation of gallamine triethiodide.

Dimethisoquin Hydrochloride. — $C_{17}H_{24}N_2O.HCl$. —M.W. 308.86.—3-Butyl-1-(2-dimethylaminoethoxy) isoquinoline hydrochloride.—The structural formula of dimethisoquin hydrochloride may be represented as follows:



Actions and Uses.—Dimethisoquin hydrochloride, an active surface anesthetic, differs chemically from local anesthetics of the benzoate ester type, such as procaine, and is somewhat more active. Its toxicity is less than that of dibucaine but greater than that of cocaine or procaine. Its index of sensitization is considered to be somewhat less than that of procaine derivatives.

Dimethisoquin hydrochloride is useful topically for the relief of itching, irritation, burning, or pain in a wide variety of dermatoses, including nonspecific pruritus and mild sunburn. Evidence indicates that its effectiveness against pruritus is only about 20% greater than that of the vehicle in which it is applied. It also may reduce the pain of sutured surgical wounds. Because of its apparent lack of systemic toxicity and low index of sensitization when applied to the skin, the drug is considered relatively safe for unsupervised use as a topical remedy for symptomatic relief of simple irritations that may accompany undiagnosed minor skin conditions. When these symptoms persist, the underlying cause should be determined by consultation with a physician. Relief of pruritus also may aid in the treatment of the underlying cause with more specific forms of therapy.

Although dimethisoquin hydrochloride has not been associated with systemic toxicity or sensitivity when applied topically to mucous membranes, its use should be restricted to the skin until there has been longer experience regarding its effects on other tissues. For the same reason it should not be applied to extensive areas of the skin. Contact with the eyes should be avoided to prevent stinging.

Dosage.—Dimethisoquin hydrochloride is applied topically to the skin, either as a 0.5% lotion for moist lesions, or as a 0.5% ointment for dry lesions. Either lotion or ointment is applied as a thin film over the affected area. One application of either form usually provides relief for 2 to 4 hours. Application more than four or five times daily seldom is required. Should sensitization appear after repeated applications, further use should be discontinued.

Smith, Kline & French Laboratories cooperated by furnishing scientific data to aid in the evaluation of dimethisoquin hydrochloride.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

The Council on Physical Medicine and Rehabilitation has authorized publication of the following article.

RALPH E. DE FOREST, M.D., *Secretary*

FEDERAL COMMUNICATIONS COMMISSION TYPE APPROVAL FOR MEDICAL ULTRASONIC APPARATUS

Fairly recently the Federal Communications Commission established new regulations for industrial and medical ultrasonic apparatus.[1] In an article in THE JOURNAL, the Council on Physical Medicine and Rehabilitation informed the medical profession of the intention of the Federal Communications Commission to establish such regulations.[2] Only data pertinent to the medical profession concerning the FCC regulations follow; however, persons concerned with the technical and precise application of the commission's rules should consult the complete regulations.

Definition.—Ultrasonic equipment covered by the regulations includes any apparatus that generates radio frequency energy of frequencies above 20 kilocycles per second and utilizes that energy to excite or drive an electromechanical transducer for the production and transmission of ultrasonic energy for industrial, scientific, medical, or other purposes (ISM frequency bands).

Operation Without a License.—Ultrasonic equipment may be operated without a license provided the design and operation complies with the technical limitations for such equipment and provided that the equipment has been (1) type approved by the commission or (2) certificated in accordance with commission requirements and the certificate attached to the equipment or prominently posted in the room in which the equipment is being operated. Ultrasonic equipment operating on frequencies below 90 kilocycles per second and generating less than 500 watts of radio frequency power may be operated without a license, type approval, or certification, if such equipment complies with all other applicable provisions of the regulations.

Technical Limitations.—1. Ultrasonic equipment shall be designed and constructed in accordance with good

1. Federal Communications Commission, Title 47—Telecommunication; Part 18—Industrial, Scientific, and Medical Service: Operation of Ultrasonic Equipment, Docket No. 11031; FCC 55-113, Federal Register 20: 741-743 (Feb. 3) 1955.

2. Ultrasonic Therapy Apparatus and the Federal Communications Commission, report of the Council on Physical Medicine and Rehabilitation, J. A. M. A. 157: 39 (Jan. 1) 1955.

engineering practice, with sufficient shielding and filtering to provide adequate suppression of emissions on frequencies outside the ISM frequency bands. 2. The fundamental frequency of operation shall fall outside the frequency bands 490 to 510, 2170 to 2194, and 8354 to 8374 kilocycles per second. 3. The varying conditions under which ultrasonic equipment is operated shall not result in radiation exceeding the following limits:

Frequency, Kilocycles/Sec.	Distance, Ft.	Field, μv/M.
Up to and including 490	1,000	$\frac{2400}{\text{Fkc}}$ *
Over 490 and up to and including 1600	100	$\frac{24000}{\text{Fkc}}$
Over 1600 exclusive of frequencies in the ISM frequency bands	100	15

* Frequency expressed in kilocycles per second.

4. On any frequency above 490 kilocycles, the radio frequency voltage appearing on each power line to the machine shall not exceed 200 μv. On any frequency below 490 kilocycles, the radio frequency voltage appearing on each power line to the machine shall not exceed 1,000 μv.

Type Approval.—Manufacturers of ultrasonic equipment desiring to obtain type approval for their equipment may request permission to submit such equipment to the Federal Communications Commission. To be acceptable for commission type approval, ultrasonic equipment must meet the following requirements: 1. It must comply with the technical limitations for ultrasonic equipment previously listed. 2. The design and construction of the equipment must give reasonable assurance of compliance with the rules for at least five years under normal operation and with average maintenance. 3. The equipment must also comply with additional general rules relative to type approval found in part 2 of the commission's rules.

Identification of Type Approval Equipment.—Equipment for which a certificate of type approval has been issued shall be identified by the insertion of the FCC type approval number on the name plate of the equipment; in addition, the manufacturer shall furnish each user of type approval equipment a certificate setting forth the conditions under which such equipment shall be operated.

Effect of Certificate of Type Approval.—A certificate of type approval issued by the commission constitutes a recognition that, on the basis of the tests made, the equipment appears to be capable of complying with the technical limitations in the commission's rules, provided such equipment is properly installed, maintained, and operated.

Changes in Type Approval Equipment.—No changes whatsoever may be made in ultrasonic equipment for which a certificate of type approval has been issued, except on specific prior approval by the commission.

Withdrawal of Certificate of Type Approval.—A certificate of type approval may be withdrawn by the commission for one of the following reasons: (1) if the type of equipment for which it was issued proves defective in service, (2) if under usual conditions of maintenance and operation such equipment cannot be relied on to meet the conditions set forth for the operation of the type of equipment involved, or (3) if any change whatsoever is made in the construction of equipment sold under the certificate of type approval issued by the commission, without the specific prior approval of the commission.

Certification Attesting Compliance with Rules.—A certification, as distinguished from a type approval certificate, attesting compliance with these rules may be affixed or posted for any ultrasonic equipment. The certification is based on an inspection of the equipment and measurements taken at the place of use after the ultrasonic equipment has been assembled and is ready for operation. This certification may be executed by any engineer skilled in making and interpreting field intensity measurements. The commission may require such an engineer to present proof of his qualifications to make such measurements.

Renewal of Certification.—This certification does not require renewal; however, when the commission has reason to believe that operation of the equipment concerned may be inconsistent with the rules, it may require a new certification based on a new set of measurements.

Interference from Complying Equipment.—In the event of interference to any authorized radio service caused by ultrasonic equipment operated in compliance with the commission's rules, steps to remedy such interference must be taken promptly; however, when interference to receivers arising from direct intermediate frequency pickup by such receivers of the fundamental frequency emission of type approved or certificated ultrasonic equipment operating in compliance with this subpart, this section of the rules does not apply.

Effective Date of New Regulations.—All ultrasonic equipment manufactured on or after July 1, 1955, must comply with the rules. Ultrasonic equipment manufactured prior to July 1, 1955, may be utilized until July 1, 1965; however, it must comply either with the new rules or with the rules for miscellaneous equipment in section 18.31 of the commission's rules, which require that devices be recertified every three years. After July 1, 1965, all such equipment must comply with the new rules.

SUMMARY

The Council is gratified that the Federal Communications Commission has established these regulations for ultrasonic equipment. They should help to minimize the possibility of radio interference caused by the operation of medical ultrasonic equipment. The effect of these regulations is that after July 1, 1955, ultrasonic equipment may be operated if it meets one of the following requirements: 1. The device must be type approved by the commission and bear the FCC type approval number on its name plate. 2. The device must be tested and certified by a competent engineer as meeting these new FCC rules. 3. If the device does not meet the new rules, it must be tested and certified every three years in accordance with the commission's older rules for miscellaneous equipment. In any event the apparatus certified in this way may not be operated after July 1, 1965. Physicians are urged to acquire only FCC type approved ultrasonic equipment in order to obviate the need for recertification and to be reasonably certain that their apparatus does not cause radio interference.

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PREMATURE INFANTS

Although there is some dissatisfaction with the grouping of all infants, including those in multiple births, whose birth weight is 2,500 gm. (5.5 lb.) or less as premature infants, this is still the most practical definition. Improved treatment has done much to save the lives of premature infants, but deaths in the first four weeks of life still occur at a high rate in these infants.[1] The greatest hope at present lies in preventing births from occurring prematurely. Every added week of gestation beyond the 28th week means a gain of 4 to 8 oz. (113.4 to 226.8 gm.) for the fetus, and every gain of 8 oz. cuts the expected death rate in half. The obstetrician can, therefore, do much to prevent prematurity by delaying delivery in patients who have not reached full term and by vigorous treatment of conditions that threaten to terminate pregnancy prematurely. It has been found that the causes of neonatal deaths are the same for premature and full-term infants. These include postnatal asphyxia and atelectasis, birth trauma, congenital malformations, infection, and blood dyscrasias. In the premature infants, however, the death rate from all these causes is higher than in the full-term infants and the proportionate distribution is different. Clifford [1] cites Burke's earlier findings in a series of 284 women. In this group all of the stillbirths, all but one of the neonatal deaths, and all but one of the premature births involved mothers whose prenatal diets were poor, especially in proteins. Clifford then cites Tompkins, who gave 750 expectant mothers a high-protein, high-vitamin, high-mineral diet with a limited intake of fluids and juicy fruits. None of the infants in this group were born prematurely, but in a similar group not on such a diet there were 37 premature infants. A correlation has been found to exist between the deficiency of the diet and the degree of prematurity. Although an inadequate diet is not the only cause of prematurity, it appears to be one of the most important and one that is frequently preventable. Crosse [2] conducted a follow-up study to determine to what extent premature babies later became a burden to the community through excessive hospitalization, unfitness for military service, retarded mental development, or crime and drunkenness. A higher incidence of congenital defects has been observed in premature infants, but this is believed to be the cause of their prematurity and not a result of it. The development of any premature baby depends on the cause and degree of its prematurity; the presence or absence of complications in pregnancy, labor, and the neonatal period; the quality of the obstetric and neonatal care; and the parents' physical and economic status. The author concluded that prematurity per se did not cause future dependency.

The principles of treatment of the premature infant include prevention of infection, maintenance of respiration and body temperature, and proper feeding, preferably with human milk.[3] Kagan and his co-workers [4] compared the weight gain in groups of premature babies fed on (1) manually expressed human milk; (2) human milk with skimmed, cultured cow's milk added; (3) cow's milk with the proportions of proteins, fats, and lactose modified to simulate those found in human milk; and (4) a half-skimmed cow's milk with added carbohydrates—high in protein and ash and low in fat. All groups were given the same number of calories per unit of body weight. Those in group 4 made the greatest gains in weight, but, because this group got four times as much ash per unit of body weight as groups 1 and 2 and twice as much as group 3, it is believed that the difference in weight gain depended on this difference in ash intake with ash retention and consequent water retention. The retention of ash was believed to indicate poor renal function in the premature babies, and the authors concluded that weight gain in itself is not a good index of progress in premature infants in the neonatal period.

In Chicago in 1922 a special premature service was established at the Michael Reese Hospital. Although its growth was slow, its value became abundantly evident, and in 1932 the small premature service at the Cook County Hospital was enlarged. In 1934 with the cooperation of these two hospitals the Chicago Board of Health inaugurated a city-wide plan for the care of premature infants.[5] It became mandatory that the board of health be notified by telephone within one hour of the birth of all premature babies, and unless the baby was in critical condition transfer to one of the premature units was arranged. The board of health provided a specially equipped and staffed ambulance for this purpose. If the baby was in critical condition, whether at home or in a hospital, an incubator was used, and if none was immediately available one was supplied on loan by the board of health. If the baby was at home a specially trained nurse was also supplied, and arrangements were made to transfer the baby to a premature unit within the first 24 hours of life. The board of health also maintained a breast milk service and impressed on the parents of all premature babies the importance of follow-up care in an outpatient clinic after the baby was discharged from the hospital. Similar programs have been established in many other large cities. Thus with an increased understanding of the causes of prematurity and the needs of the premature infant much can now be done to prevent premature birth and to save those who in spite of preventive measures are born with a subnormal birth weight.

1. Clifford, S. H.: The Problem of Prematurity: Obstetric, Pediatric, and Socioeconomic Factors, J. Pediat. **47**: 13-24 (July) 1955.
2. Crosse, V. M.: Is the Premature Baby Worth Saving? Am. J. Pub. Health **44**: 1010-1014 (Aug.) 1954.
3. Pakter, J., and Jacobziner, H.: A 5-Year Review of the Premature Infant Program in New York City, New York J. Med. **54**: 3207-3215 (Dec. 1) 1954.
4. Kagan, B. M., and others: Feeding Premature Infants—A Comparison of Various Milks, Pediatrics **15**: 373-382 (April) 1955.
5. Hess, J. H.: Chicago Plan for Care of Premature Infants, J. A. M. A. **146**: 891-893 (July 7) 1951.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

First Session, 84th Congress

Federal Advisory Council on Health

Senator Smith (R., N. J.), in S. 2405, Senator McCarthy (R., Wis.), in S. 2484, Congresswoman Church (R., Ill.), in H. R. 7345, and Congressman Frelinghuysen (R., N. J.), in H. R. 7532, have introduced identical measures to carry out the recommendations of the Commission on Organization of the Executive Branch of the Government (Hoover commission) to establish a permanent federal advisory council of health in the office of the President. The council appointed by the President would be composed of members of the medical profession and "persons with distinguished records in fields other than medicine." Blank spaces were left to be filled in the bill to specify the number of members of the two groups.

The functions of the council, most of which were recommended by the Hoover task forces, would be to: first, "Make a continuous evaluation of and recommendations as to policies and programs relating to Federal medical care and national health. Second. Advise on measures to assure adequate health manpower and hospital facilities for the Nation's health. Third. Review the various proposals and programs relating to hospital construction involving Federal funds, including Federal grants. Fourth. Advise with respect to the coordination of regional hospital services of all departments and agencies in the executive branch of the Government. Fifth. Advise with respect to more systematic cross-servicing between the various Federal medical agencies. Sixth. Advise upon measures for the adequate training and selection of the medical staffs of all Federal Services. Seventh. Advise the executive departments and agencies on all Federal medical policies and programs. Eighth. Advise the Selective Service System on the mobilization of medical personnel. Ninth. Advise concerning systems of project grants for health research programs of the Federal Government. Tenth. Report periodically to the President and to the executive departments and agencies involved on the success or failure of Federal health programs and policies. Eleventh. Report to the President and advise the Bureau of the Budget and the Congress with respect to such matters as they may request. Twelfth. Assist the Secretary of Defense to develop recommendations for revision of the Selective Service Act, as amended, so as to effect maximum utilization of medical personnel. Thirteenth. Advise the Administrator of the Veterans' Administration with respect to recommendations for closing certain hospitals belonging to such administration. Fourteenth. Review the manner in which the hospital facilities of the Veterans' Administration are being used and make recommendations for the disposal of more economic utilization of such facilities. Fifteenth. Advise the President, or any committee established or designated by him, with respect to the policies, programs and operations of the Food and Drug Administration and the Agricultural Research Service in the Department of Agriculture, with a view to eliminating those which are no longer necessary under present conditions and eliminating conflicts and overlapping of jurisdiction and functions between departments. Sixteenth. Make recommendation to improve preventive health services, including those rendered in connection with medical care of Federal beneficiaries, in the interests of both health conservation and long-range economy. Seventeenth. Review and make recommendations to the President with respect to the health research programs of the Federal Government. Eighteenth. Examine the means of establishing cooperative planning among the Federal agencies which provide psychiatric care. Nineteenth. Serve as consultant to the President's advisor on personnel with respect to making more uniform the personnel systems of the several Federal agencies using health personnel." The Senate measures were referred to the Committee on Labor and Public Welfare, the House measures to the Committee on Interstate and Foreign Commerce.

From the Washington Office of the American Medical Association.

Military Status for Public Health Service

Senator Hill (D., Ala.), in S. 2587, and Congressman Priest (D., Tenn.), in H. R. 7600, would authorize the President to make the commissioned corps of the Public Health Service a military service in time of emergency involving the national defense. Under the present law the commissioned corps may have military status only in time of war. The proposed bills would authorize a one-time uniform allowance of $250 to officers in the lower ranks if the officer is required at any time by the surgeon general to wear a uniform. Under the present law the uniform allowance is effective only in time of war. Technical amendments to the Public Health Service Act would also be made, including retirement benefits, disability benefits, and credit for noncommissioned service. The Senate bill was referred to the Committee on Labor and Public Welfare, which reported it favorably without hearings, and it was passed by the Senate. The House bill was referred to the Committee on Interstate and Foreign Commerce.

Increased Earnings Under Social Security

Senator Smathers (D., Fla.), in S. 2513, would amend the Social Security Act to increase from $1,200 to $1,500 the amount individuals would be permitted to earn without deductions from their benefits upon retirement at 65 years of age. Under the present law, one month's benefits is lost for each $80 earned in excess of $1,200. The limit on earnings applies only to wages and salaries and does not apply to income from life insurance and annuities, pension plans, interest on bonds and savings, dividends from securities, or income from the use of capital investment. This measure was referred to the Finance Committee.

Income Tax Deduction

Senator Humphrey (D., Minn.), in S. 2588, would amend the Internal Revenue Code "so as to allow a deduction for certain expenses incurred by a taxpayer for the care of his children while his wife is physically or mentally incapable of caring for such children . . . but only if such care is for the purpose of enabling the taxpayer to be gainfully employed." This measure was referred to the Finance Committee. Congressman Keogh (D., N. Y.) proposes, in H. R. 7602, for income tax purposes to allow for deductions for gifts to nonprofit voluntary health insurance plans before payment of income, gift, or estate taxes. This measure was referred to the Committee on Ways and Means.

Hospital Loans or Grants

Senator Clements (D., Ky.), in S. 2640, would revise and extend the authority of the Housing and Home Finance Administrator to make loans and grants to public and nonprofit agencies for construction of hospitals whose applications prior to June 30, 1953, were denied solely because of the unavailability of funds for such purpose. The authority would expire June 30, 1957. There would be authorized 5 million dollars for each fiscal year, ending June 30, 1956, and June 30, 1957. The bill was referred to the Committee on Banking and Currency.

Mentally Ill of Alaska

Senator Jackson (D., Wash.), in S. 2518, has introduced measures identical to H. R. 6334 and H. R. 6376, previously reported in THE JOURNAL, June 25, 1955, page 665. These measures would modernize the hospitals and commitment procedures for the mentally ill of Alaska and transfer from the federal government to the Territory of Alaska the responsibility and authority for hospital care and treatment of the mentally ill of Alaska. This measure was referred to the Committee on Interior and Insular Affairs.

Death Penalty for Narcotic Sale to Minors

Congressman Latham (R., N. Y.), in H. R. 6921, would make "the sale of narcotics drugs to a minor . . . a criminal offense punishable by death . . . if the drug has been shipped, transported, or carried in interstate commerce." This measure was referred to the Committee on Judiciary.

Food for Hill-Burton Hospital Patients

Congressman Rains (D., Ala.), in H. R. 7621, proposes "to provide for grants to State health agencies to assist Hill-Burton hospitals in providing food for the patients." This measure was referred to the Interstate and Foreign Commerce Committee.

Social Security for Dentists and Lawyers

Senator Langer (R., N. D.), in S. 2751, proposes to amend the Social Security Act to provide for voluntary coverage of lawyers and dentists under the Federal Old-Age and Survivors Insurance system. This measure was referred to the Committee on Finance.

Atomic Fall-Out

Senator Green (D., R. I.), in S. Res. 134, would endorse the "efforts of our chief delegate to the United Nations to take appropriate steps to work to establish within the United Nations procedures to receive, assemble, and report on radiological information collected by the various states with particular emphasis on radiation effects on human health and safety." This measure was referred to the Committee on Foreign Relations, favorably reported, and passed by the Senate.

Income Deductions for Contributions to Nonprofit Voluntary Health Insurance Plans

Senators Flanders (R., Vt.), Ives (R., N. Y.), and Lehman (D., N. Y.), in S. 2700, have introduced an identical measure with H. R. 7602, previously reported. In this measure they propose to allow income tax deductions for gifts to voluntary health insurance plans in calculating federal income tax. This bill was referred to the Committee on Finance.

Commission for Programs for the Aging

Congressman Ostertag (R., N. Y.), in H. R. 7499, would establish a 12-member fact-finding commission on problems of the aging, including (*a*) physical and mental aspects, (*b*) employment, (*c*) retirement programs, (*d*) housing, and (*e*) recreation. This bill was referred to the Committee on Education and Labor.

COMMISSION ON ACCREDITATION OF HOSPITALS

Dr. E. Vincent Askey, Speaker of the A. M. A. House of Delegates, has appointed a seven-man special committee to review the function of the Joint Commission on Accreditation of Hospitals. Letters of invitation to serve on the committee have been sent to Drs. W. C. Stover, Boonville, Ind., chairman; John F. Burton, Oklahoma City; Gerald D. Dorman, New York; George F. Gsell, Wichita, Kan.; Eugene F. Hoffman, Los Angeles; T. C. Terrell, Fort Worth, Texas; and George A. Unfug, Pueblo, Colo. The committee was appointed as the outgrowth of the introduction of six resolutions in the House of Delegates at the A. M. A. session in Atlantic City in June, 1955. Dr. Askey hopes that the committee will be able to submit some kind of a report to the House when it meets in Chicago next June.

HEALTH TIPS FOR TV AUDIENCES

Before the doctor comes, "what to do" about a sore back, dizzy spells, or blotches on the skin is a familiar cry in every household. To help mother cope with such emergencies, the American Medical Association now presents the third series of six five-minute films entitled, "What To Do." Featuring Actress Abby Lewis, this series presents authentic health information on eye injury, backache, baseball finger, dizziness, hay fever, and skin problems. Series 3 now is available from the A. M. A.'s film library for use by local medical societies over local television stations.

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BUREAU OF MEDICAL ECONOMIC RESEARCH

This is the second and concluding part of the survey on the economic position of medical care during a quarter of century. The first part appeared in THE JOURNAL, *Sept. 3, page 41.*—ED.

THE ECONOMIC POSITION OF MEDICAL CARE, 1929-1953

Frank G. Dickinson, Ph.D.
and
James Raymond, M.A., Chicago

Medical Care Prices

Measurements of the changes in the level of medical care prices during this quarter century cannot be presented in the same manner as the changes in personal consumer expenditures for medical care. First, index numbers measuring changes in medical care prices were not developed by the United States Bureau of Labor Statistics for the first six years of this quarter century. Its so-called cost-of-living indexes for the six years 1929 to 1934 (on the basis of 1935-1939 average prices) were: 122.5, 119.4, 108.7, 97.6, 92.4, and 95.7; but no indexes were computed and published for medical care prices. As a partial offset for these missing price indexes for the first six years we have chosen to discuss medical care prices in 1954, although the last year in the personal consumer expenditure series was 1953. Second, a complication arises from the decision of the Bureau of Labor Statistics several years ago to abandon the 1935-1939 base and substitute the 1947-1949 base. Fortunately, this decision has been altered somewhat and some indexes on the old base period are still being compiled and published. Although these will be featured in our discussion of medical care prices, it will be necessary to make comparisons of old base and new base indexes for a number of items. Third, changes in the major classifications, that is, in the columns published each month in the appendix section of the *Monthly Labor Review* of the United States Department of Labor in the new base Consumer Price Index also complicate comparisons with the old base indexes. The number of major items (columns in the tables published monthly) has been increased from 9 to 13, but both the old and the new present separate indexes for 6 items: food, apparel, rent, gas and electricity, fuel, and house furnishings. There were also old base indexes for three items: fuels, electricity, and refrigeration (a grouping of three items), ice, and miscellaneous (such items as medical care, transportation, recreation, household operation, and personal care). There are also new base indexes for seven items: housing (a grouping of five of these major items), household operation, transportation, medical care, personal care, reading and recreation, and other goods and services. Because we must discuss both the old and the new base indexes, we shall use the term "indexes" to refer to these major categories whether they are in both sets of indexes or in only one, and the term "subindexes" for those indexes that are not, or were not, published monthly.

The Consumer Price Index, as it is now called, springs from a rather long line of efforts by the Bureau of Labor Statistics to measure changes in the level—not the level itself—of prices paid for many commodities and services by city consumers of moderate incomes. Retail prices of representative commodities and services are sampled monthly or quarterly in a number of retail outlets in selected cities in the United States. These sample prices are then used by the members of the staff to compute the monthly, quarterly, or annual indexes. Rather than paraphrase the description of the present Consumer Price Index given by the Bureau of Labor Statistics, we prefer to quote rather lengthy excerpts:

"The Consumer Price Index of the Bureau of Labor Statistics is a statistical measure of changes in prices of the goods and services bought by families of city wage earners and clerical workers. . . . A complete name for this index is: *'Index of Change in Prices of Goods and Services Purchased by City Wage-Earner and Clerical-Worker Families to Maintain Their Level of Living.'* It is referred to as 'The Consumer Price Index.' However, the long title contains the key to the meaning of the index.

"The index is concerned with *prices*. These are the retail prices of foods, clothing, housefurnishings, fuel and other goods; the fees paid to doctors and dentists; prices in barber shops and other service establishments; rents; rates charged for transportation, electricity, gas and other utilities; and so on. They are prices charged to consumers, including sales and excise taxes . . . urban wage-earner and clerical-worker families . . .

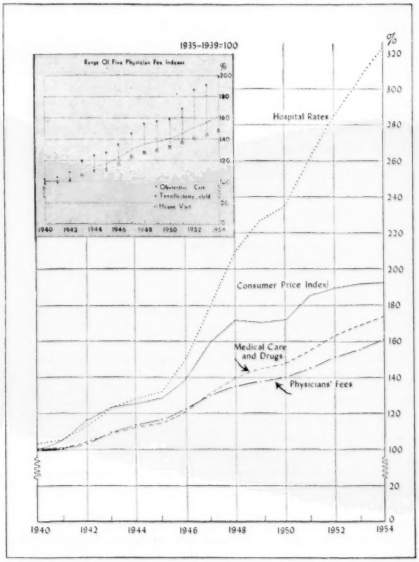

Chart V.—Consumer Price Index and medical care indexes, 1940-1954. Source: U. S. Bureau of Labor Statistics.

are families of two or more persons living in the 3000 towns, cities and suburbs of the United States, ranging in population from small cities of 2500 people to New York City. . . . The average size in 1952 of the families included in the index was estimated to be about 3.3 persons, and their average family income was estimated at about $4160 after taxes. . . .

"The 'index market basket' is an estimate of the goods and services bought by this group of the population in 1952 to use, replace and add to their possessions, to keep up their 1952 level of living . . . the 'index market basket' does not reflect purchases of families at the lowest and highest extremes of the income scale, who live at different levels of living.

"The index is concerned with *change* in prices. It measures the effect of price changes on the cost of the goods and services in the 'market basket.' The content of the 'market basket'—that is, the quantities and qualities of goods and services that represent what families bought in 1952—is assumed to remain the same, so that the change in cost from month to month is the result of *changes in prices*. . . .

Director (Dr. Dickinson) and Staff Associate (Mr. Raymond), Bureau of Medical Economic Research, American Medical Association.
Regina Evans Holloman, research assistant, assisted in the preparation of the tables.

Because of space limitations the appendix has been omitted and will appear in the Bureau's reprints.

"Price changes are expressed in *percentage* terms, and the percent changes for various goods and services averaged and compared to some past period. . . . Thus, if we take the cost of the 'market basket' at the earlier reference date as equal to 100, the index for the later date measures, in percentage terms, how much the cost of the same 'market basket' has changed. An index of 110 means a 10 percent increase; an index of 90 means a 10 percent decrease.

"Index numbers are published by the Bureau of Labor Statistics to one decimal place. The index number of 100.0 is for the average of three years—1947, 1948, and 1949—the 'base period' of the index. Index numbers as published from month to month compare prices *at each date* with the average level of prices in these three years. . . .

"Even though American families buy thousands of different kinds and qualities of variously priced goods and services, prices of many groups of items change at about the same rate . . . so that a change in the price of one . . . may be representative of the others. . . .

"In 1950 and 1951 the Bureau priced and studied the price changes of hundreds of items [and] . . . selected about 300 items, which together can be used to estimate the average change in prices of all items. . . . It is important to be certain, however, that the calculation shows *only* price change and not changes due to other things, such as quantity or quality differences. . . . To prevent this, insofar as possible, the Bureau has prepared detailed specifications to describe the items that are priced for the index. . . ." [3]

Indexes for the years prior to 1953 were computed on the old base period. The price data were collected by this sampling process in 34 large cities only one of which had a population of less than 100,000 in 1950. Food and fuels were priced monthly in all of these cities, and other commodities and services were priced on varying cycles. Only in the five largest cities was the complete list sampled each month. According to Bulletin 1165 of the Bureau of Labor Statistics, the old base subindexes used in our tables for the years prior to 1953 were based on prices collected in the following 18 cities: Baltimore; Birmingham, Ala.; Boston; Chicago; Cincinnati; Detroit; Houston, Texas; Jacksonville, Fla.; Los Angeles; Memphis, Tenn.; Minneapolis, Minn.; Mobile, Ala.; New York; Philadelphia; Pittsburgh; Portland, Maine; St. Louis; and San Francisco. Prices for the new base indexes were collected monthly for food, fuel, and rent in 46 cities. But the old base subindexes for 1953 and 1954 presented in our tables (that is, all of the components of the medical care and drugs index, furniture, men's street shoes, women's cotton house dresses, and motion picture admissions) were compiled quarterly from prices collected in only 14 cities with a total population of about two-fifths of the population of the 46 cities. The 14 cities are: Atlanta, Ga.; Baltimore; Chicago; Cincinnati; Detroit; Los Angeles; Madison, Wis.; Newark, Ohio; New York; Philadelphia; St. Louis; San Francisco; San Jose, Calif.; and Youngstown, Ohio. In order to present subindexes (table 6) for the 20 categories under medical care and drugs for 1953 and 1954 it has been necessary for us to utilize subindexes based upon only 14 cities and computed on the old base period, which we prefer. It is not impossible, however, that the data for the 14 cities reveal the changes in prices as well as would have data from either the 18 or the 46 cities. Certainly this narrower base qualifies our analysis. The omission of these 20 subindexes would restrict the discussion to the new base period without any subindexes under medical care and drugs.

TABLE 6.—*Consumer Price Index, Index and Subindexes for Medical Care and Drugs, 1940-1954*
1935-1939=100.0

Adjusted Indexes (1)	1940 (2)	1941 (3)	1942 (4)	1943 (5)	1944 (6)	1945 (7)	1946 (8)	1947 (9)	1948 (10)	1949 (11)	1950 (12)	1951 (13)	1952 (14)	1953 (15)	1954 (16)
Consumer Price Index	**100.2**	**105.2**	**116.5**	**123.6**	**125.5**	**128.4**	**139.3**	**159.6**	**171.9**	**170.2**	**171.9**	**185.6**	**189.8**	**191.3**	**191.9**
Medical care and drugs	**100.8**	**101.4**	**104.2**	**109.2**	**112.6**	**115.3**	**121.6**	**131.6**	**140.1**	**144.9**	**147.9**	**155.0**	**163.3**	**168.5**	**173.9**
I. Medical care, excluding drugs	101.0	101.6	104.6	110.2	114.6	117.7	124.8	135.3	144.4	149.7	153.1	160.9	170.6	177.2	182.6
A. Physicians' fees (general practitioner, surgeon, specialist)	100.3	100.7	102.9	109.5	113.9	116.6	122.4	130.2	135.5	137.9	140.0	145.2	151.5	155.7	160.3
1. General practitioners' fees	100.4	100.7	102.9	109.3	114.0	116.6	122.4	130.3	135.2	137.7	139.8	145.2	151.7	156.0	161.1
(a) Office visit	100.4	100.5	102.4	108.4	113.8	117.2	123.5	131.5	136.9	139.0	140.9	146.0	151.7	157.2	163.5
(b) House visit	100.2	100.2	102.2	107.6	111.4	113.3	118.0	125.3	128.5	131.4	133.9	138.3	142.3	145.7	148.8
(c) Obstetric case	101.3	103.2	107.7	118.6	123.8	126.1	133.7	143.7	153.4	155.6	157.3	167.3	184.8	189.2	198.0
2. Surgeons' and specialists' fees	99.5	100.5	103.3	109.4	113.6	116.9	122.3	129.4	135.8	138.4	140.6	144.3	149.7	153.2	154.9
(a) Appendectomy, adult	100.3	101.5	104.4	110.6	114.5	118.2	122.4	128.2	133.1	134.2	137.4	141.6	147.4	150.3	151.4
(b) Tonsillectomy, child	98.5	99.2	101.9	107.8	112.8	115.7	122.3	130.7	138.7	142.8	144.0	147.2	152.4	156.8	160.9
B. Dentists' fees	101.1	101.5	104.1	108.8	114.8	119.7	126.9	137.4	144.8	150.6	154.3	160.0	163.3	168.8	174.5
1. Fillings	101.8	102.4	105.7	109.2	113.8	118.8	127.3	137.7	145.1	150.9	154.5	159.5	163.5	169.0	174.1
2. Extractions	100.8	101.1	103.0	107.8	115.1	121.4	128.4	139.0	146.8	152.9	156.9	164.5	166.4	172.7	181.3
C. Optometrists' fees, eyeglasses	101.9	102.1	103.4	107.9	110.5	112.0	114.0	118.6	123.6	127.6	128.9	134.6	136.2	134.9	133.2
D. Hospital rates	103.5	105.5	113.7	122.8	128.3	132.3	150.6	179.6	209.7	226.8	235.3	260.7	285.6	304.5	322.1
1. Men's pay ward	104.2	107.1	116.9	126.9	133.2	136.0	158.4	194.4	231.6	253.5	265.5	297.2	327.8	351.3	372.4
2. Semiprivate room	103.7	105.9	114.2	122.2	127.5	133.3	149.1	175.1	204.2	221.7	229.6	253.6	276.2	292.2	307.5
3. Private room	103.3	104.8	111.8	120.1	125.1	128.9	145.4	169.7	194.7	207.7	213.7	233.7	254.7	271.0	287.8
E. Group hospitalization *	....	....	....	....	....	....	....	....	....	....	....	103.1	116.4	126.2	135.4
II. Prescriptions and drugs	99.9	100.8	103.1	103.8	104.7	105.6	107.5	115.4	121.5	123.3	124.8	128.4	129.5	130.8	132.2
A. Prescriptions	100.7	101.9	104.6	105.5	107.2	108.7	112.5	123.7	133.9	137.1	140.7	147.7	149.4	149.5	152.4

Source: U. S. Bureau of Labor Statistics published and unpublished data. The Consumer Price Index is based on prices collected in 34 or 46 cities; indexes for individual items are based on prices collected in 18 or 14 cities. See also chart V.
* December, 1950 = 100.0.

Beginning in January, 1953, the Bureau of Labor Statistics shifted over to the new base, 1947-1949. Other important changes that were put into effect were discussed in our Bureau Bulletin 95, "Old and New Base Periods for Medical Care Price Indexes"; we analyzed in some detail the effects of shifting from the old base to the new base. The objections made to the change in base periods were: (1) the changes were made during an inflationary period, (2) the years chosen as the new base period (1947-1949) were themselves inflationary years, (3) the selection of these years assumed, unjustifiably, that most of the components of the Consumer Price Index reflected the inflationary trend to approximately the same extent, (4) the selection of these particular years also assumed, again unjustifiably, that substantially all the post-World War II readjustments in prices had occurred prior to Jan. 1, 1947. A brief examination of one of the major components of the total Index, rent, will demonstrate the last two objections. Rents could not have kept pace with other inflationary trends because rents were still subject to the controls imposed during wartime, and rents were not decontrolled until the fall of 1953, well after the close of the new base period. That the postwar years through the end of 1951 were inflationary years is shown clearly by chart V. The Consumer Price Index, based on the 1935-1939 average, rose steeply

3. The Consumer Price Index: A Short Description of the Index as Revised, 1953, United States Department of Labor, Bureau of Labor Statistics, January, 1953.

each year from 1945 to 1951, from 128.4 to 185.6. Its rate of climb began to diminish late in 1951; as may be seen from the even numbered columns of table 6 and in chart V, the Consumer Price Index rose only 1.5 points from 1952 to 1953. In 1953 the Index was 191.3, and by 1954 it was 191.9, i. e., it had climbed scarcely more than ½ point during 1954. (For the first quarter of 1955, it was 191.1.) This indicates that since 1951 the consumer price level was stable.

Bulletin 95 also cited some of the desirable changes in the revised Index: 1. The "index market basket" was enlarged so that about 300 items are now being priced as compared with about 200 items for the old base index. 2. The contents of this index market basket were modernized; e. g., penicillin was substituted for quinine and the price of home maintenance was obtained for the first time. 3. The major groups were increased from six to eight. 4. The method of assigning a weight to each item priced was changed so as to utilize 1950 population data rather than data from the 1940 census. 5. The number of cities where prices were sampled was increased from 34 to 46. This larger number of cities is more nearly representative of the dis-

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been published by the Bureau of Labor Statistics on the old base than on the new base. Item indexes based on 1947-1949 = 100 are, however, provided here for the reader who desires to make comparisons; those new base subindexes not made available by the Bureau of Labor Statistics have been calculated—the odd numbered columns of table 7 and the bottom four rows of table 8. Where this has occurred in tables 7 and 8, entries will be found in table columns headed "Conversion Factor"; otherwise, all price indexes appearing in this bulletin are those published or furnished by the Bureau of Labor Statistics.

Table 8 shows indexes for both the 1935-1939 and 1947-1949 base periods for selected commodities and services. Indexes and subindexes for the year 1954, columns (12) and (13), showing the end-results of the shift in base periods, reveal three patterns: (1) individual indexes that were higher than the entire Consumer Price Index on the old base, 191.9, and become lower (than 114.8) on the new, (2) indexes that were lower than the entire Consumer Price Index on the old base and became higher on the new and, (3) those indexes that were high or low on both

TABLE 7.—*Consumer Price Index, Index and Subindexes for Medical Care and Drugs, 1950-1954 1935-1939=100.0, and 1947-1949=100.0*

Adjusted Indexes (1)	1947-1949 Ave. Old Base (2)	Conversion Factor 100 ÷ Col. (2) (3)	1950 Old Base (4)	1950 New Base (5)	1951 Old Base (6)	1951 New Base (7)	1952 Old Base (8)	1952 New Base (9)	1953 Old Base (10)	1953 New Base (11)	1954 Old Base (12)	1954 New Base (13)
Consumer Price Index	**167.2**	.....	**171.9**	**102.8**	**185.6**	**111.0**	**189.8**	**113.5**	**191.3**	**114.4**	**191.9**	**114.8**
Medical care and drugs	**138.9**	.....	**147.9**	**106.0**	**155.0**	**111.1**	**163.3**	**117.2**	**168.5**	**121.3**	**173.9**	**125.2**
I. Medical care, excluding drugs	143.1	0.689	153.1	107.0†	160.9	112.5†	170.6	119.2†	177.2	123.9†	182.6	127.6†
A. Physicians' fees (general practitioner, surgeon, specialist)	134.5	0.743	140.0	104.1	145.2	107.9	151.5	112.6	155.7	115.7	160.3	119.1
1. General practitioners' fees	134.4	0.744	139.8	104.0	145.2	108.0	151.7	112.9	156.0	116.1	161.1	119.9
(a) Office visit	135.8	0.736	140.9	103.7	146.0	107.5	151.7	111.7	157.2	115.7	163.5	120.3
(b) House visit	128.4	0.779	133.9	104.3	138.3	107.7	142.3	110.9	145.7	113.5	148.8	115.9
(c) Obstetric case	150.9	0.663	157.3	104.3	167.3	110.9	184.8	122.5	189.2	125.4	198.0	131.3
2. Surgeons' and specialists' fees	134.5	0.743	140.6	104.5	144.3	107.2	149.7	111.2	153.2	113.8	154.9	115.1
(a) Appendectomy, adult	131.8	0.759	137.4	104.3	141.6	107.5	147.4	111.9	150.3	114.1	151.4	114.9
(b) Tonsillectomy, child	137.4	0.728	144.0	104.8	147.2	107.2	152.4	110.9	156.8	114.2	160.0	116.5
B. Dentists' fees	144.3	0.693	154.3	106.9	160.0	110.9	168.3	116.2	168.8	117.0	174.5	120.9
1. Fillings	144.6	0.692	154.5	106.9	159.5	110.4	168.5	116.1	169.0	116.9	174.1	120.5
2. Extractions	146.2	0.684	156.9	107.3	164.5	112.5	160.4	113.8	172.7	118.1	181.3	124.0
C. Optometrists' fees, eyeglasses	123.3	0.811	128.9	104.5	134.6	109.2	136.2	110.5	134.9	109.4	132.2	108.0
D. Hospital rates	295.4	0.487	235.3	114.6	260.7	127.0	285.6	139.1	304.5	148.3	322.1	156.9
1. Men's pay ward	226.5	0.442	265.5	117.4	297.2	131.4	327.8	144.9	351.3	155.3	372.4	164.6
2. Semiprivate room	200.3	0.499	229.6	114.6	253.6	126.5	276.2	137.8	292.2	145.8	307.5	153.4
3. Private room	190.7	0.524	213.7	112.0	233.7	122.5	254.7	133.5	271.0	142.0	287.8	150.8
E. Group hospitalization *	.....	.....	.....	.....	103.1	.....	116.4	.....	126.2	.....	135.4	.....
II. Prescriptions and drugs	120.1	0.833	124.8	104.0	128.4	107.0	129.5	107.9	130.8	109.0	132.2	110.1
A. Prescriptions	131.6	0.760	140.7	106.9	147.7	112.3	149.4	113.5	149.5	113.6	152.4	115.8

Source: U. S. Bureau of Labor Statistics published and unpublished data. The Consumer Price Index is based on prices collected in 34 or 46 cities; indexes for individual items are based on prices collected in 18 or 14 cities.

* December, 1950 = 100.0.

† With the exception of the Consumer Price Index and the index for total medical care and drugs, all other indexes in the "New Base" columns are our estimates obtained by multiplying the "Old Base" index by the conversion factor in col. (3).

tribution of all United States consumers than was the former list of 34 large cities. Our conclusion was that if indexes were not presented by the Bureau of Labor Statistics for both the old (1935-1939 = 100) and the new (1947-1949 = 100) base periods, an illusory effect might be created for such components of the Consumer Price Index as rent and medical care. As noted, the Bureau of Labor Statistics has decided to continue to provide some indexes on the old base. These old base subindexes (for the 20 categories under medical care and drugs and other categories) for 1953 and later are not published monthly in the *Monthly Labor Review* but, instead, in occasional publications of the Bureau of Labor Statistics; as noted, subindexes based on the 1935-1939 averages frequently do not have as broad a samplying base as do the regularly published indexes based on the 1947-1949 averages. The annual old base indexes and subindexes for the years since 1949 are presented in the last five columns of table 6 [and in the even-numbered columns, except (2) of table 7].

The years 1935-1939 constitute a better base period than the years 1947-1949. Our major emphasis is, therefore, placed on the "old base" indexes; some are presented in chart V. Moreover, more subindexes of the eight major groupings have actually

periods. These patterns reflect the differences in price movements before and after 1947-1949. The food index reflects the first pattern; on the old base, the 1954 index for food, 227.5, was considerably above the entire Consumer Price Index, 191.9, but on the new base it was below it, 112.6 versus 114.8. This means that food prices increased greatly prior to 1947-1949 but have risen less rapidly than prices for other items since that time. Price indexes for personal care, as well as the subindexes for furniture and women's cotton house dresses, reflect the same pattern as food; the prices of women's cotton house dresses in 1954 were sharply misrepresented by the shift in base period —276.1 versus 94.7. The 1954 indexes for medical care and drugs on the old and the new base periods show the second pattern. They are lower than the entire Consumer Price Index on the old base, 173.9 versus 191.9, and higher on the new base, 125.2 versus 114.8. The price indexes for rent and transportation also follow this second pattern in which the new base indexes suggest high levels of prices in 1954 because the prices lagged so much before 1947-1949 and subsequently rose relatively fast. While price increases for these items were rapid after 1947-1949—serving to bring these prices into line with those for commodities and services that had accelerated earlier—their

increase over the entire period, 1935-1954, has not been as great as that for the entire Consumer Price Index.

For the remaining items, D to G, in table 8 the shift in the base period does not change the rank order. The index for reading and recreation was lower than the entire Consumer Price Index on both bases, while the subindex for motion picture admissions was slightly higher on both. Although the subindex for men's street shoes was higher on both bases, it was so much higher on the old base (268.4 versus 191.9) than on the new base (119.7 versus 114.8) that the misrepresentation of the 1954 new base subindex is almost as great as that for women's cotton house dresses. If it had been possible and feasible for the Bureau of Labor Statistics to present price quotations in dollars and cents along with price indexes and subindexes for each year since 1935, the mirage of favorable prices to consumers in 1954 for food, personal care, furniture, women's cotton house dresses (and men's street shoes) and unfavorable prices for rent, transportation and medical care would disappear; in fact, the reverse would be evident.

The stability of the entire Consumer Price Index during 1952-1954, when it moved so narrowly from 189.8 to 191.3 to 191.9, suggests that this later period would outrank 1947-1949—when the Index jumped from 159.6 to 171.9 and 170.2—as a good choice for a post-World War II base period. Having criticized the undue haste in selecting 1947-1949 as a base period, we are now bold enough to suggest that it be quickly abandoned in favor of 1952-1954; the latter approaches the stature of a "normal period."

TABLE 8.—*Comparisons of Selected Price Indexes for 1950-1954 on the 1935-1939 Base and the 1947-1949 Base*

Adjusted Indexes (1)	1947-1949 Ave. Old Base (2)	Conversion Factor 100 ÷ Col. (2) (3)	1950 Old Base (4)	1950 New Base (5)	1951 Old Base (6)	1951 New Base (7)	1952 Old Base (8)	1952 New Base (9)	1953 Old Base (10)	1953 New Base (11)	1954 Old Base (12)	1954 New Base (13)
Consumer Price Index	**167.2**	....	**171.9**	**102.8**	**185.6**	**111.0**	**189.8**	**113.5**	**191.3**	**114.4**	**191.9**	**114.8**
Medical care and drugs	**138.9**	....	**147.9**	**106.0**	**155.0**	**111.1**	**163.3**	**117.2**	**168.5**	**121.3**	**173.9**	**125.2**
A. Food	202.0	....	204.5	101.2	227.4	112.6	231.5	114.6	227.9	112.8	227.5	112.6
B. Rent	120.4	....	131.0	108.8	136.2	113.1	141.9	117.9	149.4	124.1	154.7	128.5
C. Transportation	144.6	....	162.2	111.3	173.2	118.4	184.1	126.2	187.5	129.7	185.1	128.0
D. Personal care	174.2	....	176.6	101.1	192.5	110.5	194.9	111.8	196.5	112.8	197.5	113.4
E. Recreation and tobacco	156.2	....	163.8	103.4	168.5	106.5	172.6	107.0	....	....	....	....
Reading and recreation	....	....	....	....	....	....	....	....	168.7	108.0	167.1	107.0
Motion picture admissions	167.6	0.597	170.3	101.7*	172.8	103.2*	174.2	104.0*	182.7	109.1*	194.4	116.1*
F. Furniture	212.3	0.471	215.7	101.6*	236.4	111.3*	231.3	108.9*	230.2	108.4*	228.1	107.4*
G. Men's street shoes	224.0	0.446	236.1	105.3*	269.4	120.2*	265.4	118.4*	265.2	118.3*	268.4	119.7*
H. Women's cotton house dresses	291.7	0.343	271.5	93.1*	282.5	96.9*	275.0	94.3*	276.7	94.9*	276.1	94.7*

Source: U. S. Bureau of Labor Statistics published and unpublished data. The Consumer Price Index is based on prices collected in 34 or 46 cities; indexes for individual items are based on prices collected in 18 or 14 cities.
* These "New Base" indexes are our estimates obtained by multiplying the "Old Base" index by the conversion factor in col. (3).

SUBINDEXES FOR MEDICAL CARE

The subindex for physicians' fees has been consistently lower than that for the broader subindex, medical care excluding drugs. In 1954 the subindex for medical care excluding drugs was 182.6 (table 6), while that for physicians' fees was 160.3—22.3 points lower. The subindex for physicians' fees was computed from a sample of general practitioners' fees for office (163.5) and house visits (148.8) and obstetric cases (198.0) in certain cities; and by pricing surgeons' and specialists' fees for performing appendectomies in adults (151.4) and tonsillectomies in children (160.0). The increases in the subindexes for physicians' fees are fairly similar, except for the obstetric case. As indicated in the inset in the upper left-hand corner of chart V, there is an ever-widening spread since 1943 between the lowest subindex, house visit, and the highest subindex, obstetric case. (We have been unable to find conclusive evidence that a portion of the rise in this subindex has resulted from a measurable increase since 1935 in the quantity of physicians' services given in an obstetric case.) The forces of supply and demand being what they are, it is perhaps surprising that the great increase in number of babies born in 1953 over the number born in 1945 has not resulted in an even greater post-World War II increase in these subindexes, particularly for obstetric care; in 1945 there were 2,700,000 births as compared with 3,900,000 in 1953.

The subindexes for dentists' fees rose 3.3 points from 1951 to 1952, 5.5 points from 1952 to 1953, and 5.7 points from 1953 to 1954. The average of the four quarterly indexes for dentists' fees for 1954 was 174.5; the subindexes for dental extractions show, however, more rapid and marked increases. The subindexes for hospital room rates have continued their disproportionately rapid rate of increase. The 1954 subindex for hospital room rates was 322.1, that is, hospital room rates apparently were 222% higher in 1954 than in 1935-1939. Moreover, the 1954 subindex is 130 points higher than the Consumer Price Index, 148 points higher than the medical care and drug index, and 162 points higher than the subindex for physicians' fees. The indexes for medical care and drugs would have been markedly lower if the component subindexes for hospital room rates had not skyrocketed. This subindex reflects only changes in room rates, not changes in the unit prices of laboratory and other "extra" services that the attending physician orders for his patient. Population increase and especially the big baby crop of the postwar years have, together with health education, increased greatly the demands for hospital care. In 1929 only 29% of the United States births occurred in registered hospitals, but in 1953 the percentage was 85; and, in some states, the percentage was as high as 98. The subindex of 132.2 for prescriptions and drugs, as a whole, shows the least increase of any grouping in table 6; the 1954 subindex for prescriptions alone was 152.4, and its course in the 1950's is parallel to the course of the subindex for surgeons' and specialists' fees for appendectomies performed on adults.

NEW BASE INDEXES

The purpose of table 7 is to provide a counterpart to the missing breakdowns for medical care items on the new base period, 1947-1949. One general conclusion may be drawn from a perusal of this table: Even on the old base, the rate of increase in the index for medical care and drugs, as well as for one of its chief components, physicians' fees, has been more rapid in recent years than for the entire Index. Readers of current Department of Labor publications and monthly press releases, seeing only the new base indexes for the entire Index and for medical care and drugs (the first two rows of the odd numbered columns of table 7) in the published tables, will note that the medical care index is rising at a faster rate than the entire Index, but readers will not see the sharply rising subindexes for hospital rates, a subindex that has risen far faster than the other subindexes of medical care. They may very well conclude that the upward change in every component of medical care prices is relatively greater than upward changes in prices for all consumer goods and services. Most important, they will not have before them the old base subindexes indicating that other medical care prices continue to be quite reasonable.

The first two rows of table 7 on the new base are published monthly and are given wide publicity in the press. We have used the published breakdowns (table 6) of the medical care items on the old base and a conversion factor to obtain "conversion subindexes" on the new base. The conversion factor is the reciprocal (multiplied by 100) of the averages for 1947-1949 of the old base subindexes; there is one conversion factor for each

subindex. These conversion factors were then applied to the old base subindexes for each year since 1949 to obtain the conversion subindexes on the new base. This procedure does not, of course, increase the number of cities in the sample from 14 or 18 to 34 or 46 in the computed new base subindexes. In that sense these computed new base subindexes in the odd-numbered columns of table 7 do not have the sampling coverage of the medical care and drug index on the new base published each month. They provide, in a sense, a second basis—in addition to table 6—for watching the behavior of the subcategories of medical care and drugs on the new base during the period, 1950 to 1954, and directly comparing each with the entire Consumer Price Index and the index of medical care and drugs. Similar comparisons for years after 1949 can be made from table 6.

The 1954 subindex for physicians' fees, 119.1, was above the entire (new base) Consumer Price Index of 114.8 [column (13), table 7]. The 1954 subindex for general practitioners' fees was 119.9 and for surgeons' and specialists' fees, 115.1. The latter was very close to the entire Consumer Price Index for 1954, 114.8. The principal reason why the subindex for general practitioners' fees was 5.1 points higher is, of course, the rise in fees for obstetric case; this subindex was 131.3 in 1954, the only really moderately high subindex among the seven for physicians' fees. The upward tug of fees for obstetric care is indicated in the inset in chart V for all the years since 1939. The subindex for hospital room rates was 156.9 for 1954. Again, it is this part of the medical care and drugs index that is mainly responsible for the 1954 new base index of medical care and drugs being over 10 points above the entire Consumer Price Index, 125.2 versus 114.8. Finally, the 1954 subindex for prescriptions and drugs was only 110.1; this item is, of course, a commodity and not a service, and the American genius for efficient mass production is among the factors responsible for keeping drug prices and, in turn, their price subindexes low. Indeed, it is unfortunate that some genius at mass production cannot put hospital rooms, therapy, and nurses on an assembly line and invent a machine able to give a patient after operation a bath and handle several tubular appendages to take care of such necessities as drainage and injections. The chores incident to getting sick people well must still be carried out by artful human hands. The shorter work week, the severe competition of other job opportunities, and similar factors have continued to push upward the nursing and other labor costs of operating a hospital—almost two employees are needed per patient. Unlike physicians and dentists, the hospital is an institution, and the services that it sells are produced by individuals with equipment, food, and supplies. Some of these were still in the inflationary spiral in 1954, with no end in sight. Fortunately the average length of stay of patients continues to decline.

This discussion of new base indexes and subindexes and our use of a conversion factor on the old base subindexes to develop new base subindexes for the categories of medical care and drugs should not obscure our argument against the new base itself. The new base period was a period of rising prices in the United States rather than a "normal" period. The suppliers of those goods and services that had risen rapidly in price by 1947-1949 may prefer to use the new base period solely because it makes their product or service seem low in price regardless of the current dollar price and regardless of any general consideration of the merits of choosing a postwar inflationary period for a base for this very important Index. Insofar as the Bureau of Labor Statistics measures changes in the levels of prices of medical care and drugs, we are entitled to state that, with the exception of hospital room rates, no medical care subindex has risen as rapidly as the Consumer Price Index since 1935-1939. On the other hand, we have frankly admitted that the subindexes for physicians' fees, notably for an obstetric case, have risen more rapidly since 1947-1949 than has the entire Consumer Price Index. As time passes, the monthly reports of changes in these indexes may well obscure the facts for the longer period of time, 1935-1954. Every student of economics is confronted with choices of periods of time to study. We have set forth the conclusions based upon these two intervals of time, one long and one short, and stated a strong preference for the longer period.

Changes in Efficiency and Incomes

One established method of estimating the volume of production is to divide an index of dollar sales or purchases by a suitable index of prices. This procedure is sometimes called "deflation of a dollar series" and the result, a "constant price series." This division is designed to eliminate the effect of changes in prices. In using the indexes of personal consumer expenditures in table 4 and the indexes of consumer prices of table 6 for the same items, it should be remembered that these two series do not completely match. One series is published by the Department of Commerce for its purposes and the other series by the Department of Labor for its purposes. Nevertheless, the two fit about as well as most pairs of indexes of dollars spent and prices paid. Setting the ratio between the two indexes equal to 1.0 in the old base period, 1935-1939, we note that the index of personal consumer expenditures in 1947-1949 was 274 as compared with the Consumer Price Index of 167, thereby establishing a production index of 1.6 for 1947-1949; it was 1.8 in 1950 and 1.9 in 1953.

The production ratio for medical care alone was 2.0 (281 divided by 139) in 1947-1949; it was 2.2 in 1950 and 2.3 in 1953. (A production ratio cannot be presented at this time for 1954 because the data for computing the index for the numerator, total personal consumer expenditures for medical care, has not been reported.) The 1953 production ratio for physicians' services was 2.2 (343 divided by 156), for dentists' services 1.6, and for hospitals 1.9. The data in the various tables permit computations of other production ratios. The 1953 production ratios for physicians and dentists indicate a gross increase in the amount of their services consumed by the people, especially physicians' services. Considering the increase in the number of physicians and dentists since the base period and other qualifying factors, this procedure indicates an increase of more than 69% in the output per physicians and more than 33% in the output per dentist. Moreover, since the population of the United States increased only 23% between 1935-1939 and 1953, it follows that there has been a marked increase in the consumption of medical services per capita, possibly as much as 75%. The precise amounts of the increases in the quantity of medical care per capita and in the "output per physician" can scarcely be stated herein because of a number of qualifying factors of a technical nature, but this process of deflation clearly indicates a very considerable increase in the per capita consumption of medical services by American consumers. As in other parts of this study, we are here concerned only with personal consumer expenditures.

These increases in the quantity of medical care per capita, and in the quantity of physicians' services per capita and per physician, have not occurred in isolation. They are interlocked with other social and economic changes. The increase in the gross national product, in national income, and in personal consumer expenditures were factors. The altered patterns of food distribution and consumption, improvements in transportation, and the raising of the levels of health education have helped to increase the technological efficiency of physicians. The significant increase in the use of personally owned automobiles has made it easier and more economical for the patient to consult his physician in the office and the hospital; in turn, this has reduced the physician's unproductive time spent in going to see his patients, sometimes at a considerable distance, thereby enabling the physician to see more patients and less of the countryside. The physician has also been aided by developments in the drug industry and the improvement in its products. The expansion in the range of possible treatments has placed a much greater premium on the physician's knowledge of systemic medicine, biochemistry, and a long line of related subjects, as well as upon his skills in using new tools. This, in turn, has made medical education and training longer and more expensive. The refinement and standardization of physicians' skills and the growth in the number of paramedical personnel (such as nurses, laboratory technicians, and physical therapists), the use of more and better scientific equipment in physicians' offices as well as in hospitals, and the increased concentration of people and facilities in the metropolitan centers have all contributed to the physician's increased efficiency as a producer and, hence, to a greater medical output per physician. Although such a consideration is

outside the scope of this study, it should be noted that the services of physicians have increased the technological efficiency of the working population.

The increase in the output per physician demonstrates that a nose count of physicians or a determination of the population per physician is a highly inadequate measure of the supply of physicians' services. It is no more reasonable to use a count of physicians as a measure of supply of medical services than it is to use a count of agricultural workers as a measure of food supply. Indeed, the quality, quantity, and availability of food in the United States have increased greatly during the past quarter century, while the percentage of gainfully employed people in agriculture has been steadily declining. While in 1900 one farmer produced only enough food to supply himself and seven others, today he supplies himself and 18 others. The number of rural mail carriers has also declined, while the volume of mail delivered has increased by leaps and bounds. A dynamic economy requires that the number of persons per 100,000 population engaged in some occupations and professions should decline in order to expedite progress, whereas in other occupations and professions the number of persons per 100,000 population should increase. It is entirely possible that the tremendous increase in the technological efficiency of physicians—in the "output per physician"—and the promise of the continuance of this rapid rate of increase imply that the number of physicians per 100,000 population should decline.

ABILITY TO PAY

The foregoing discussion of changes in personal consumer expenditures for medical care and in the indexes of medical care prices raises the question of changes since 1935-1939 in the ability to pay for medical care. According to data published regularly in the *Monthly Labor Review* of the Department of Labor,[4] the average gross weekly earnings of production workers in manufacturing industries was $22.42 (computed) in 1935-1939 and $71.64 in 1954; that is, the ratio for the latter year was 3.20, a gain of 220% over the base period. A discussion of weekly wages after withholding taxes and other taxes have been deducted is beyond the scope of this study of consumers, as individuals and not as taxpayers. (Shortly before the charts were engraved and the tables set in type, we computed the average for the 12 months of 1954 as $71.64. The official average, $71.86, was not available soon enough. Consequently no corrections have been made in table 9 and chart VI—the 1954 ratio should be 3.21, not 3.20, and the hospital percentage should be 100, not 101.)

Year	Average Weekly Earnings	Ratio (1935-1939 = 100)
1935-1939	$22.42	1.00
1947-1949	53.01	2.36
1950	59.33	2.65
1951	64.71	2.89
1952	67.97	3.03
1953	71.69	3.20
1954	71.64	3.20

Consider a person who had an illness in 1937 who paid a physician $22, his wages for one week, for 11 office calls. These 11 office calls, if the unit price had changed precisely at the rate shown in the index for office visits [column (12), table 9], would have been priced 63.5% higher in 1954, or about $36. But the average gross weekly earnings in 1954 were approximately $72 instead of $36. Only 51% of the average week's wages in 1954 would have been required to purchase the amount of office visits to a physician that could have been purchased with an entire week's wages in 1935-1939. Consider also a person who spent five days in a hospital bed in 1937 at the rate of $4.50 a day, or a total of $22.50, one week's wages. The index for hospital room rates indicates that this hospital bed would have been priced at 322.1% of the base period price, or about $72.50 for the five-day stay; almost 101% of a week's pay in 1954 would have been required to purchase the amount of hospital service (five days) that could have been purchased with one week's wages in 1935-1939.

Other percentages of one week's wages in 1954 for various items are presented in column (13) of table 9 and in chart VI. Most of these percentages are around 50 for the medical care and drugs items, with a low of 46 for a house visit and highs of 62 for an obstetric case and the 101 already noted for hospital room rates. In the lower half of the table the percentages for the selected items show a low of 48 for rent and highs of 84 for men's street shoes and 86 for women's cotton house dresses. The standard of reference here is the 60% for the group of commodities and services included in the entire Consumer Price Index; items for which the percentage was below 60 indicate a more favorable situation for buyers in 1954 than for the group of commodities and services included in the Consumer Price Index.

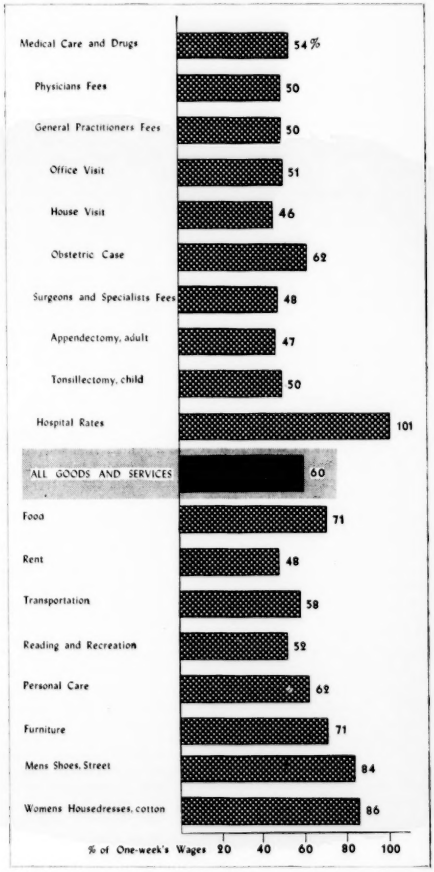

Chart VI.—Percentage of one week's wages in 1954 required to purchase amount of medical care and other items that could be purchased with one week's wages in 1935-1939. Source: U. S. Bureau of Labor Statistics.

4. Monthly Labor Review 78: 502, table C-2 (April) 1955.

These percentages of one week's pay, particularly those below 60, may come as a surprise, but a moment's reflection will place them in perspective. Gross weekly wages rose more rapidly than most unit prices for medical care. Broadly speaking, the earnings of the American people are related to total personal consumer expenditures. The very favorable behavior of medical care prices in relation to the stability in the percentage of total consumer expenditures for medical care items during this period points inevitably to the conclusion that the quantity of medical care purchased by the people has been increasing rapidly. This increase in the quantity of medical care that people have been able to purchase is a part of our rising standard of living. It also explains the apparent inconsistency between the very consistent relationship between personal consumer expenditures for medical care and total personal consumer expenditures on the one hand and the sharp decline in the percentage of a week's wages required in 1954 to purchase the amount (11 office calls, five days in a hospital) of medical care that would have required a whole week's wages in the base period 1935-1939. In general, a fixed unit of medical service now costs about half of a week's wages, but the people are buying many more units than in 1935.

TABLE 9.—*Percentage of One Week's Wages in 1947-1949 and 1950-1954 Required to Purchase the Amount of Medical Care and Other Items That Could Be Purchased with One Week's Wages in 1935-1939*

(1)	1947-1949		1950		1951		1952		1953		1954	
	Average Price Index (2)	% One Week's Wages (Col. 2 ÷ 2.36*) (3)	Average Price Index (4)	% One Week's Wages (Col. 4 ÷ 2.65*) (5)	Average Price Index (6)	% One Week's Wages (Col. 6 ÷ 2.80*) (7)	Average Price Index (8)	% One Week's Wages (Col. 8 ÷ 3.03*) (9)	Average Price Index (10)	% One Week's Wages (Col. 10 ÷ 3.20*) (11)	Average Price Index (12)	% One Week's Wages (Col. 12 ÷ 3.20*) (13)
Medical care and drugs	**138.9**	**59%**	**147.9**	**56%**	**155.0**	**54%**	**163.3**	**54%**	**168.5**	**53%**	**173.9**	**54%**
A. Physicians' fees	134.5	57	140.0	53	145.2	50	151.5	50	155.7	49	160.3	50
1. General practitioners' fees	134.4	57	139.8	53	145.2	50	151.7	50	156.0	49	161.1	50
(a) Office visit	135.8	58	140.9	53	146.0	51	151.7	50	157.2	49	163.5	51
(b) House visit	128.4	54	133.9	51	138.8	48	142.3	47	145.7	46	148.8	46
(c) Obstetric case	150.9	64	157.3	59	167.3	58	184.8	61	189.2	59	198.0	62
2. Surgeons' and specialists' fees	134.5	57	140.6	53	144.3	50	149.7	49	153.2	48	154.9	48
(a) Appendectomy, adult	131.8	56	137.4	52	141.6	49	147.4	49	150.3	47	151.4	47
(b) Tonsillectomy, child	137.4	58	144.0	54	147.2	51	152.4	50	156.8	49	160.0	50
B. Hospital rates	205.4	87	235.3	89	260.7	90	285.6	94	304.5	95	322.1	101
Consumer Price Index	**167.2**	**71**	**171.9**	**65**	**185.6**	**64**	**189.8**	**63**	**191.3**	**60**	**191.9**	**60**
Other Items												
A. Food	202.0	86	204.5	77	227.4	79	231.5	76	227.9	71	227.5	71
B. Rent	120.4	51	131.0	49	136.2	47	141.9	47	149.4	47	154.7	48
C. Transportation	144.6	61	162.2	61	173.2	60	184.1	61	187.5	59	185.1	58
D. Personal care	174.2	74	176.6	67	192.5	67	194.9	64	196.5	61	197.5	62
E. Recreation and tobacco	156.2	66	163.8	62	168.5	58	172.6	57	.....	..	.....	..
Reading and recreation	.....	..	.....	..	.....	..	.....	..	168.7	53	167.1	52
Motion picture admissions	167.6	71	170.3	64	172.8	60	174.2	57	182.7	57	194.4	61
F. Furniture	212.3	90	215.7	81	236.4	82	231.3	76	230.2	72	228.1	71
G. Men's street shoes	224.0	95	236.1	89	269.4	93	265.4	88	265.2	83	268.4	84
H. Women's cotton house dresses	291.7	124	271.5	102	282.5	98	275.0	91	276.7	86	276.1	86

Sources: Tables 7 and 8 and U. S. Bureau of Labor Statistics Bulletin 916, and Monthly Labor Review **78**: 4, table C-3 (April) 1955. See also chart VI.

* This is the ratio appearing on page 124 of the text, obtained by dividing the average week's wages for the years subsequent to 1935-1939 by the average week's wages ($22.42) for that base period.

INCOMES OF PHYSICIANS

We have noted the stability during the quarter century of the percentage of personal consumer expenditures going for medical care items—with some increase since World War II when the number of births climbed rapidly—the slower rise in the indexes of physicians' fees than in the entire Consumer Price Index since 1935, and the considerable increase in the output per physician. The latter two factors tend to counterbalance. Income, of course, involves unit price times quantity sold. The lag in medical fees has been counterbalanced by the increase in output per physician. It is not surprising, therefore, to find that the incomes of physicians, on the average, have just about kept pace during the 25-year period with the increase in the earnings of all gainfully employed persons. This fact needs to be stressed. A chart in an advertisement by a well-known book publisher appeared in many newspapers and magazines during March, 1955. This chart seemed to imply that physicians' incomes since 1940 have increased, on the average, more rapidly than those of persons in certain selected occupations. Vague references were made to supporting data for 1940 published by the Department of Commerce, but we know of no comprehensive study of physicians' incomes for that year. Furthermore, the war in Europe was well underway in 1940, thereby eliminating that year as an acceptable base period.

Our general conclusions on physicians' incomes, presented also in chart VII, are taken directly and specifically from the *Survey of Current Business*, published monthly by the Department of Commerce. There is nothing vague about our source. The incomes of physicians in 1949 were, on the average, 108% higher than in 1929, whereas for the average earnings of wage and salary workers as well as individual business and professional workers an increase of 109% was recorded. Between 1949 and 1951 the increases were 13% and 15%.

"In the 20-year period since 1929, the average net income of all civilian physicians more than doubled, but this relative increase was practically identical with that for all earners in the general population over the same period. . . . During the same period, all earners in the general population (wage and salary workers, as well as independent business and professional workers) recorded almost the identical relative increase (109 as compared with 108 percent) as all physicians" (July, 1951, pages 9 and 10).

". . . 1949 to 1951. Physicians' incomes rose 13 percent over the period. . . . These increases in professional incomes since 1949 should be considered against the background of the general rise in money incomes and prices. From 1949 to 1951 there were increases of about 15 percent in both the over-all average earnings of employees and proprietors . . ." (July, 1952, page 5).

Since the patients and potential patients of American physicians include all the gainfully employed and their families, the proper basis of comparison, as the second quote from the *Survey of Current Business* states so clearly, is the entire body of gainfully employed people. Moreover, the reason for comparing the incomes of physicians in 1949 with those in 1929 is simply that, in the opinion of the statisticians of the Department of Commerce, there was no benchmark study of physicians' incomes in 1940 but there was one in 1929.

The surveys of physicians' income in 1949 and 1951, conducted by the Office of Business Economics of the Department of Commerce, differed in one important respect. The 1949 survey was based upon a very large sample, approximately 30,000 replies, whereas the 1951 survey was based upon fewer than 1,000 responses; also, the percentage of physicians responding was far lower in the 1951 survey than in the 1949. Although the Department of Commerce may undertake another survey of physicians' incomes in the near future, they have made no survey for the years since 1951. The long-time close relationship, 1929-1951, between the percentage increase in physicians' incomes and in the incomes of the gainfully employed suggests that this relationship would have held in 1952 and 1953. If that be true, we can conclude that physicians' incomes during the quarter century under study have kept pace with the incomes of their patients. More generally, throughout this quarter century the economic position of physicians has not changed in reference to the economic position of their patients, the American people, despite the afore-mentioned changes in personal consumer expenditures for medical care, in the indexes of medical care prices in relation to the entire Consumer Price Index, and the sharp increase in the output per physician. The physicians have been fair in the economic aspects of medical

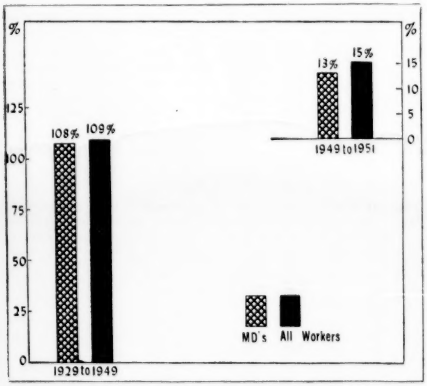

Chart VII.—Percentage increases in average incomes of physicians and of their patients. Source: U. S. Department of Commerce.

practice during this quarter century, and the people have been fair to their physicians. Thus physicians are still traveling up the center of the inflationary highway. We shall leave to others the task of drawing conclusions of this type regarding the economic position of dentists, the suppliers of drugs and sundries, hospital services, and the groups supplying the commodities and services grouped in our tables under "All Other Medical Care."

Conclusions

In attempting to describe the economic position of medical care during this quarter century, 13 tables, 8 charts, and many definitions have been employed. We have tried to answer our 10 questions set forth at the start of this discussion. The first question referred to the highlights of the expansion in the American economy during the quarter century. While the population was increasing from 122 million in 1929 to 158 million in 1953, the gross national product increased from 104 billion to 365 billion dollars (see appendix). In this national economic aggregate, government purchases of goods and services rose from 8% of the total to 23.5%. The estimated gain in physical output per capita was 57%. The dynamic character of the American economy during this quarter century was manifest not only in the changes of the types and kinds of medical care purchased by consumers but in practically all the commodities and services purchased by consumers. Perhaps the most outstanding economic change in medical care resulted from the phenomenal increase in the number of births, an increase of 1,200,000 "bundles of joy" after World War II. This increase means that a diminishing portion of medical care expenditures is for disease and trauma, for pregnancy is certainly not a disease. Since the text comments on these changes during the quarter century were, at best, only a summary, no attempt will be made here to summarize them. The next 3 of the 10 questions dealt with definitions and, accordingly, cannot be a part of the conclusions.

The study has been largely limited to the private part of our economy, what we spend as consumers and not what we spend as taxpayers. But the economic gains of this quarter century must be tempered by a recognition of the rising national debt and the additional burden placed upon the next generation by our failure to prepay the full cost of our social security pensions. Restricting this discussion to the private part of the economy has enabled us to avoid the puzzling questions about the medical care expenditures of the Department of Defense and of the Veterans Administration for the medical care of persons with service-connected disabilities and about other similar public expenditures, such as the desirability of adding federal farm subsidies to the expenditures for food. It was suggested that a balance sheet of the assets and liabilities of the American people, in addition to an income statement, would have enabled us to properly separate and treat the private and public items, and to appraise the economic gains of the quarter century.

While personal consumer expenditures were rising from 79 billion to 230 billion dollars during the quarter century, those for medical care rose from 2.9 billion to 10.0 billion dollars. Personal consumer expenditures for food, which have continued to be the largest item in the consumer budget, rose from 24.7% to 31.2% of the grand total, whereas the percentage spent for medical care ranged from 3.72 in 1929, to 3.99 in 1930, and to 4.35 in 1953. The rather steady increase in this percentage since 1945, from 4.14 to 4.35, has been due in a large measure to the increase in the number of births, the exceedingly strong demand for the medical care of preschool children, the sharp increases in labor and other costs of operating our voluntary hospital system, and the large and persistent increase in the overhead cost of operating our voluntary health insurance system; the last item is not a medical care item per se. The percentage of total personal consumer expenditures made for the services of physicians has ranged during the quarter century narrowly from 1.1 to 1.3. The physicians' share of the medical care dollar declined from 33 cents to 28 cents; for the services of dentists the decline was from 16 cents to less than 10 cents. On the other hand, the hospital share of the medical care dollar rose rapidly from 14 cents to 26 cents. The hospitals were more exposed to inflation. The phenomenal health progress achieved during this quarter century probably would have been impossible without the increasing use of hospitals.

The Consumer Price Index of the Bureau of Labor Statistics was 92% higher in 1954 than in the old base period, 1935-1939. Partly because most breakdowns of this Index were not available for the first six years of the quarter century, the price indexes and subindexes for 1954 were presented; thus a fifth of a century of prices was reviewed. The index of the major medical category, medical care and drugs, rose 74%; the subcategory for physicians' fees rose 60% (for obstetric fees, 98%) and for hospital room rates, 222%. The new base period, 1947-1949, is a poor base period because the postwar inflationary forces had not run their course until 1952-1954; the latter three years would have been a better selection for a postwar base period. It is true, however, that the subindexes for physicians' fees on either base period indicate that physicians' fees since 1947-1949 have risen more rapidly than the entire Consumer Price Index, but not for the longer period.

In measuring changes in ability to pay, the comparative increases in the average weekly earnings of production workers and in the various consumer price indexes indicated that a given quantity of medical care—11 office calls, 5 days of hospitalization—that would have required an entire week's wages in

1935-1939 required only about one-half of a week's wages in 1954; a cross section of all commodities and services priced in the Consumer Price Index would have cost only 60% of a week's wages in 1954. The percentage of a week's wages in 1954 required for other items were: 54 for medical care and drugs; 50 for physicians' fees; 101 for hospital room rates; 48 for rent; 84 for men's street shoes, and 86 for women's cotton house dresses. The ability to pay, as measured in this fashion, has more than kept pace with the rises in the prices of these consumer items and suggests that there have been increases in the quantity of medical care purchased.

Indexes of output were computed in the traditional manner by dividing the index of personal consumer expenditures by the corresponding index of prices. Some of the resulting 1953 production indexes (1935-1939 equals 1.0) were: total medical, 2.3; physicians' services, 2.2; dentists' services, 1.6; and hospital services, 1.9. Considering the increase in the number of physicians and dentists, there were gains of about 69% in the output per physician and 33% in the output per dentist. These increases in the volume have helped to offset the failure of fees to rise as rapidly as the prices of all commodities and services since 1935-1939. Physicians have unquestionably helped to increase the technological efficiency of their patients. Despite implications to the contrary by some writers, data published by the Department of Commerce indicate that the average income (before taxes) of physicians has increased at almost exactly the same rate as the average income of all gainfully employed people since 1929. Relative to the incomes of his patients, the economic position of the physician has not changed.

Bearing in mind the tremendous changes in the patterns of consumer expenditures during this quarter century, it is clear that the medical care industry—if we may be forgiven for calling it an industry—has continued to occupy about the same economic position as it did a quarter century ago. Meanwhile the expectation of life has risen from 57 years to more than 68 years. In terms of quantity and quality of output it is quite possible that this is our most efficient industry. Social progress may be described but not precisely defined. In its essence, it is more and better years in which to enjoy and grow with more and better goods and services. In this sense, the quarter century under observation has probably been the greatest in the history of mankind. The considerable contribution of medical care to this dynamic quarter century has been achieved at reasonable cost to the patient.

Senile Osteoporosis.—[This] is a physiological condition in which bone production is less than bone resorption. It appears to be due to deficient osteoblast stimulation. Calcium metabolism and serum levels of calcium, phosphorus, and alkaline phosphatase are normal; urine calcium tends to be increased and is an index of the degree of activity of the process. One of the main etiological factors is considered to be a relative preponderance of antianabolic over anabolic hormones. The efficacy of therapy can theoretically be assessed by radiological changes, symptomatic improvement, repeated biopsies, studies with radioisotopes of calcium, or by calcium balance studies. Only the last has been proved to be a useful index at the present time. Therapy should consist of analgesia and rapid mobilization in instances in which there has been acute symptomatic fracture. Continued mobility and muscle-strengthening exercises should be obtained in all cases. Long-term maintenance is recommended on a high-protein diet with up to 1,000 mg. of calcium per day, with B vitamins and ascorbic acid if desired, but without vitamin D. Women are maintained on estrogen, with testosterone being used initially and up to the point of masculinization; men are maintained on androgen, with estrogen given initially and until femininization becomes disturbing. Continued combined androgen and estrogen therapy may be desirable in both men and women when osteoporosis is severe and general debility is present. Prolonged immobilization is to be avoided in patients with osteoporosis and in elderly patients in general. —M. Moldawer, M.D., Senile Osteoporosis, *A. M. A. Archives of Internal Medicine,* August, 1955.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACT

Privileged Communications: Names of Physician's Patients Treated in Hospital.—The Commissioner of Internal Revenue obtained an order directing the Albert Lindley Lee Memorial Hospital to turn over to the Office of Internal Revenue the names and addresses of all of Dr. Cincotta's patients who were treated in the hospital during the years 1946 to 1950. The purpose of the order was to aid the Office of Internal Revenue in an investigation of the tax returns of Dr. Cincotta. The hospital moved to dismiss the order on the ground that a New York statute extends to physicians the privilege of not having to disclose facts revealed to them in confidence by patients. The hospital maintained that it was entitled to the benefit of this statute. The order to show cause why this ruling should not be vacated was heard by the United States district court, N. D., New York.

The statute, said the court, was designed to protect disclosures made to a doctor when he is acting in a professional capacity, but the privilege extends only to personal facts not generally known to the public that might bring the patient humiliation, embarrassment, or disgrace. The information sought by the Office of Internal Revenue did not come within the scope of the privilege statute. Three facts were sought; the names of the patients, their addresses, and the fact that they were treated by Dr. Cincotta. Such facts could not be considered either as having been revealed in confidence or as being personal facts not generally known to others. The court therefore sustained the order requiring the hospital to furnish the requested information. In re *Albert Lindley Lee Memorial Hospital, 115 F. Supp. 643 (U. S., 1953).*

Workmen's Compensation Acts: Dermatitis Venenata as Accidental Injury.—An action for an award was taken under the Workmen's Compensation Act for injuries sustained from an accident occurring at work. When an award was allowed by the industrial commission, the employer appealed to the Supreme Court of Mississippi. The claimant worked in the defendant's bakery and, for the purpose of handling hot pans, wore a baker's mitten, called Jomac. Subsequently a rash developed on his hands and arms, which his doctor diagnosed as dermatitis venenata. After a temporary layoff from work the trouble disappeared, but upon his return to work the disease immediately reappeared. Allergy tests with the mitten were then performed, and the results showed that the claimant had contracted the disease because of an allergy to either the material or some chemical in the mitten. In bringing a suit for workmen's compensation the claimant contended that he had suffered an accidental injury, not an occupational disease.

The Supreme Court said that an accident, as generally understood, is an unexpected event. To this extent the contracting of dermatitis venenata was an accident, since it was the unexpected result of wearing the baker's mitten. Under the workmen's compensation law a compensable accident need not happen suddenly, nor as a result of the application of an external force. All that need be shown is that a causal factor, which existed or took place within a reasonably determinable period of time, brought about the accidental injury and that the causal factor arose out of the scope of the employment. The Supreme Court found that this requirement was met by the claimant, since the facts indicated that the injury was directly caused by the contact with the mitten, which contact took place within the scope of his employment and during a reasonably determinable period of time. Continuing, the Supreme Court said that an occupational disease is one that is commonly known to be a concomitant of a particular occupation. The claimant's dermatitis venenata was not a disease concomitant with the bakery occupation because the average baker would not contract the disease by wearing a mitten like the one worn by the claimant. The claimant contracted the disease only because of a peculiar susceptibility to it. Accordingly, the award in favor of the claimant was affirmed. *Hardin's Bakeries v. Ranager, 64 So. 2d 705 (Miss., 1953).*

MEDICAL NEWS

CALIFORNIA

Postgraduate Conferences.—Stanford University School of Medicine announces postgraduate conferences, "Important Recent Advances in Treatment in General Practice" (Sept. 12-14, $75) and "Recent Advances in General Surgery and Surgical Anatomy" (Sept. 12-16, $125). Applications for registration should be made to the Office of the Dean, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

Symposiums on the Campus.—Three medical symposiums, sponsored by the Orange County and Riverside County Medical Associations and the San Bernardino County Medical Society, the School of Medicine at the University of California at Los Angeles, and the University of California Extension, will be presented this fall on the Riverside campus of the university: "What's New in Medicine," Sept. 21, 1-9:15 p. m.; "Obstetrics," Sept. 28, 2:30-9:30 p. m.; and "Fevers of Unexplained Origin," Oct. 5, 9 a. m.-5 p. m. Fees are $17.50 for one symposium, or $50 for all three. Application or requests for information should be made to: Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24, or telephone GRanite 8-9711 or BRadshaw 2-8911, extension 202.

CONNECTICUT

Personal.—Dr. Edward J. Lynch retired recently as superintendent and medical director of Laurel Heights State Tuberculosis Sanatorium after 38 years of service.——Dr. William H. Upson, Suffield, was recently elected president of the Connecticut Public Health Association. Dr. Edward M. Cohart, New Haven, was named president-elect.

Floods Cancel Industrial Health Symposium.—The Industrial Health Symposium scheduled for Sept. 22 at the United States Rubber Company, Footwear Division, in Naugatuck (THE JOURNAL, Aug. 13, 1955, page 1375), has been canceled because of flood conditions. The symposium had been planned by the committee on industrial health, Connecticut State Medical Society.

Seminar in Neurology.—Dr. Joseph A. Beauchemin, Middletown, director, Connecticut Postgraduate Seminar in Psychiatry and Neurology, announces that sessions in clinical neurology, neuroroentgenology, electroencephalography, neuroanatomy, neurophysiology, and neuropathology will be held on Mondays and Wednesdays, Sept. 25-Dec. 5, from 3 to 9 p. m. at Yale University School of Medicine, New Haven. There are no fees.

GEORGIA

Society News.—The Georgia Society of Ophthalmology and Otolaryngology recently elected the following officers: Dr. Alton V. Hallum, Atlanta, president; Dr. William L. Barton, Macon, vice-president; and Dr. Walter P. Rhyne, Albany, secretary-treasurer.——At the annual meeting of the Georgia Society of Anesthesiologists in Augusta, Drs. Stuart C. Cullen, Iowa City, and David A. Davis, Chapel Hill, N. C., were guest speakers. The following officers were elected for the coming year: chairman, Dr. William H. Galvin, Emory University; secretary-treasurer, Dr. Lester Rumble Jr., Atlanta; delegate, Dr. Edwin L. Rushia, Augusta; and alternate, Dr. Hayward S. Phillips, Augusta.——The Georgia Diabetes Association plans to hold at least one large clinical meeting each year at the time of the convention of the state medical association. A semiannual meeting is planned for this September in Atlanta. Physicians who join before the September meeting will be considered charter members. Application for membership should be submitted to any of the following officers: Dr. Christopher J. McLoughlin, president, 1010 Medical Arts Bldg., Atlanta; Dr. George R. Dillinger, vice-president, 314 S. Broad St., Thomasville; or Dr. Alex T. Murphey, secretary-treasurer, 1719 Walton Way, Augusta.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

IDAHO

General Practice Meeting in Boise.—The Idaho Academy of General Practice will hold its annual meeting at the Boise Hotel in Boise, Sept. 23-24, in conjunction with the cancer society meeting. Guest speakers will include the following physicians from the University of Utah School of Medicine, Salt Lake City: Emil G. Holstrom, "Differential Diagnosis of Lesions of Cervix and Vulva"; L. Paul Rasmussen, "The Premature, Care of the Newborn and Feeding Problems in Infancy"; and Russell M. Nelson, "Surgical Approach to the Problem of Advanced Malignancy." Dr. Emory L. Soule of St. Anthony is program chairman. On Saturday there will be a football game between the University of Idaho and University of Utah at Boise.

ILLINOIS

Clinics for Crippled Children.—The University of Illinois division of services for crippled children has scheduled the following clinics to which any private physician may refer or bring children for examination or consultative services:

Sept. 13, Peoria, Children's Hospital; East St. Louis, St. Mary's Hospital.
Sept. 14, Joliet, Will County Tuberculosis Sanatorium (Sunny Hill Sanatorium).
Sept. 15, Anna, City Hospital; Rosiclare, Y.M.C.A. Building.
Sept. 16, Evanston, St. Francis Hospital.
Sept. 20, Centralia, Recreation Center.
Sept. 21, Evergreen Park, Little Company of Mary Hospital; Jacksonville, Our Saviour's Hospital.
Sept. 22, Rockford, St. Anthonys Hospital; Bloomington, St. Joseph's Hospital; Chester, Lutheran School.
Sept. 23, Chicago Heights (rheumatic fever), St. James Hospital.
Sept. 27, Peoria, Children's Hospital; Effingham (rheumatic fever), St. Anthony's Emergency Hospital.
Sept. 28, Springfield (cerebral palsy), Memorial Hospital; Aurora, Copley Memorial Hospital.

Chicago

Volunteer Medical Company.—A meeting of the Volunteer Medical Company 9-20, U. S. Naval Reserve, will be held at the U. S. Veterans Research Hospital, Room A-302, 333 E. Huron St. (MOhawk 4-6600), 8:15 p. m., Sept. 13. "Kidney Function in Health and Disease" (movie) will be presented by Drs. Arthur C. Corcoran, Cleveland, Don Carlos Hines, Indianapolis, and Irvine H. Page, Cleveland.

Fund to Help Disabled Practitioners.—The executive director of the Dr. Adolph Gehrmann fund announces that funds are available for sick and disabled practicing physicians who are in need of financial assistance in their attempt to regain health and for the widow of a physician for a period of not greater than one year after the death of her husband. The fund cannot be used as an old age pension for physicians but must help, adhering to the statement in the will, "in his or their attempt to regain health." Applications for assistance should be made to Mr. James Brown IV, Executive Director of the Chicago Community Trust, 10 S. LaSalle St., Chicago 3.

KENTUCKY

University News.—Dr. William C. Adams, Ridgewood, N. J., has been appointed instructor in child health at the University of Louisville School of Medicine.——Ten class reunions (fifth year classes, 1905-1950) of the University of Louisville School of Medicine will be held in Louisville during the annual meeting of the Kentucky State Medical Association Sept. 27-29. The reunion dinners will follow a cocktail party given by the medical school faculty in the Brown Hotel at 5 p. m. Thursday. It is

planned to have class reunions of Louisville medical school graduates in conjunction with the Kentucky State Medical Association annual meeting each year in the future. In 1956, the 10 classes will start with the year 1906 and continue with each consecutive fifth year through 1951.

State Medical Meeting in Louisville.—The Kentucky State Medical Association will hold its annual meeting (the Jerman Baker Memorial Meeting) Sept. 27-29 in the Columbia Auditorium, Louisville, where welcoming remarks will be made by Dr. Gradie R. Rowntree, Louisville, president, Jefferson County Medical Society. Dr. Clyde C. Sparks, Ashland, president of the state society, will deliver the presidential address at 10 a. m. Dr. Elmer Hess, Erie, Pa., President of the American Medical Association, will address the president's luncheon Wednesday, 11:45 a. m., on "What the Physician Owes His Patient." Presentations by out-of-state speakers during the scientific sessions will include:

Variations in the Disease, Pulmonary Tuberculosis, Edgar M. Medlar, Ithaca, N. Y.
Urologic Pathology of Interest to the General Practitioner, Frank M. Woods, Miami, Fla.
Role of the Medical Department in Today's Navy, Adm. Ocie B. Morrison Jr., Portsmouth, Va.
Convulsive Seizures in Infancy and Childhood, James G. Hughes, Memphis, Tenn.
Adrenal Cortical Hormones as Therapeutic Agents, Albert Segaloff, New Orleans.
The Changing World for Medicine, Austin Smith, Chicago, Editor of THE JOURNAL.
Effect of Anesthetic Agents on the Heart, David A. Davis, Chapel Hill, N. C.
Gastric Ulcer—Criteria for Determining Method of Treatment, Harold J. Kullman, Dearborn, Mich.
A Case for Social Medicine, Peter L. Scardino, Savannah, Ga.

Thursday afternoon will be devoted to the programs of nine specialty groups. The morning and afternoon sessions on Tuesday and Wednesday and the morning session on Thursday will begin with color television, eight hours in all being devoted to this medium.

MONTANA

Society News.—The Montana Society of Pathologists recently elected Dr. Edwin C. Segard, Billings, president; and Dr. John A. Newman, Butte, secretary.

Personal.—Dr. Sidney A. Cooney, Helena, a past-president of the Montana Medical Association, was honored by the Lewis & Clark Medical Society at a testimonial banquet for his approaching 50th anniversary in the practice of medicine. Dr. Edward S. Murphy, Missoula, served as master of ceremonies, and testimonials were presented by Dr. James M. Flinn, Helena, Dr. Edmund A. Welden, Lewistown, Dr. R. O. Lewis, Helena, president of the society, and Mr. L. R. Hegland, executive secretary of the Montana Medical Association. Dr. Cooney, who has long been active and interested in public health and medical and athletic affairs, has served as a member of the board of medical examiners for 35 years and as its secretary for 24 years.

State Medical Meeting in Bozeman.—The 77th annual meeting of the Montana Medical Association will convene in the Student Union Building on the campus of Montana State College, Bozeman, Sept. 15-18. Scientific sessions will open at 9 a. m. with an address of welcome by Dr. Francis I. Sabo, Bozeman, president, Gallatin County Medical Society, to which response will be made by Dr. John J. Malee, Anaconda, president, Montana Medical Association. Guest speakers and their first presentations will include:

Michael L. Mason, Chicago, Management of Burns.
Daniel C. Darrow, Kansas City, Kan., Pathogenesis of Metabolic Alkalosis.
Benjamin Felson, Cincinnati, Recent Advances in Roentgen Contrast Visualization.
Leonard A. Lang, Minneapolis, Deflexion Attitudes.
Robert J. Bolt, Ann Arbor, Mich., Newer Measures for Evaluating Gastric Function and Early Detection of Gastric Carcinoma.
Jerome A. Hilger, St. Paul, Bronchologic Methods in Pulmonary Diagnosis.
Sture A. M. Johnson, Madison, Wis., Diagnosis and Treatment of Some Common Skin Disorders.
Merrill J. Reeh, Portland, Ore., The Glaucoma Problem.

A clinicopathological conference will be presented Thursday at 1:45 p. m., with Dr. Paul J. Gans, Lewistown, as moderator. Dr. George T. R. Fahlund, Great Falls, will serve as moderator for a symposium on trauma Friday, 1:15 p. m. Dr. David Gregory, Glasgow, will moderate a clinicopathological conference Saturday at 1:15 p. m. The annual reception will precede the banquet Thursday, 8. p. m., at which Dr. Raymond E. Benson, Billings, will serve as toastmaster and the Hon. John C. Vivian, Denver, will speak on "The State of the Nation." The Gallatin County Medical Society will be host to all members and guests of the association at a dance and buffet supper at Gallatin Gateway Inn, Friday, 8:30 p. m. The Montana Physicians' Service will be host at a friendship hour and cocktail party Saturday, 6-8 p. m., at the Baxter Hotel. The woman's auxiliary will meet simultaneously with the parent organization. At the auxiliary luncheon meeting Thursday, 12:30 p. m., Dr. George W. Setzer, Malta, president-elect of the Montana Medical Association, will deliver greetings.

NEW YORK

Nutrition Workshop.—A "Nutrition Workshop" is being planned by the Medical Society of the County of Monroe, with the cosponsorship of the Rochester-Monroe County chapter of the American Red Cross, Rochester-Monroe County Nutrition Committee, and the Rochester Dietetic Association, for Sept. 22 at the Rochester Gas and Electric Company's auditorium. There will be afternoon discussion groups on diabetes, arteriosclerosis, heart disease, and obesity. In the evening, Dr. James H. Hundley, chief of the laboratory of biochemistry and nutrition in the National Institute of Arthritis and Metabolic Disease, Bethesda, Md., will talk on nutrition.

New York City

Workshop in Medical Writing.—The Washington Square Writing Center at New York University's division of general education will present a "Workshop in Writing for Medical and Scientific Journals" and "Techniques of Practical Writing" as part of its fall program for adult students, who may enroll for courses from Sept. 12 to 30. Information can be obtained from the Division of General Education, New York University, 1 Washington Square North, New York 3.

Research Expedition to Amazon.—Dr. Hans H. Neumann, research assistant in dentistry, and Nicholas A. DiSalvo, Ph.D., assistant professor of physiology, Columbia University College of Physicians and Surgeons, have flown to the upper Amazon valley, where they will lead a six week expedition to study the diet of isolated Indian tribes in connection with dental caries and will collect data from a biophysical rather than from a biochemical angle. Dr. Neumann initiated his study in 1939. The present expedition will be a continuation of observations he has made around the globe in such places as Polynesia and India. South American scientists are expected to join the expedition.

OHIO

Grants in Hypertension and Cancer Research.—Research grants of more than $90,000, recently awarded to Dr. Harry Goldblatt, director of laboratories, and Erwin Haas, Ph.D., biochemist, for continuation of research on high blood pressure and cancer at Mount Sinai Hospital, Cleveland, include $20,000 from the Louis D. Beaumont Trust and $73,000 from the U. S. Public Health Service.

OREGON

Personal.—Dr. Arthur J. O'Toole, Portland, has been named coroner for Multnomah County to succeed the late Dr. F. Floyd South. Dr. O'Toole serves on the staffs at Portland Sanitarium and Hospital and Providence and St. Vincent's hospitals, Portland, and will continue in private practice.——Dr. Adolph Weinzirl, head, department of public health and preventive medicine, University of Oregon Medical School, Portland, has been appointed by Governor Paul Patterson to serve on a nine-man interim committee to study sex crime prevention. The committee also will consider the cause and prevention of sex deviation and abnormalities and submit their recommendations to the governor and the legislature before the next session convenes.

State Medical Meeting in Portland.—The 81st annual session of the Oregon State Medical Society and the 8th annual meeting of the Oregon Academy of General Practice will be held in conjunction with the 22nd Sommer Memorial Lectures, Sept. 27-30 at the Masonic Temple, Portland. The Sommer memorial guest lecturers will present the following lectures:

Cyrus C. Sturgis, professor of medicine, University of Michigan Medical School, Ann Arbor, (1) Etiology and Treatment of Hematologic Disorders. (2) Diagnosis and Management of Toxic Thyroid States and Cancer of the Gland. (3) Nature and Treatment of Various Forms of Leukemia and Allied Disorders.

George T. Pack, clinical professor of surgery, New York Medical College, New York, (1) Tumors of the Soft Somatic Tissues. (2) Moles and Melanoma. (3) Surgical Treatment of Primary and Secondary Liver Tumors.

Edgar A. Pask, professor of anesthetics, University of Durham Medical School, Newcastle Upon Tyne, England, (1) What is the Anesthesiologist Seeking To Do? (2) Jimmy Brown's Ordinary Operation: Part of the Surgical Adventures of One Patient. (3) Ordinary Troubles with Anaesthetics.

The guest lecturer of the Oregon Academy of General Practice, Dr. Alec M. Agnew, professor of obstetrics and gynecology, University of British Columbia Faculty of Medicine, Vancouver, B. C., Canada, will discuss "Problems in Stage O Carcinoma of the Cervix," "Obstetrical Emergencies," and "Indications for Hysterectomy."

PENNSYLVANIA

Rush Award Winners.—Winners of the Benjamin Rush award, presented each year by the Medical Society of the State of Pennsylvania to laymen contributing outstanding service to their communities in the field of public health, have been announced as Stanley Franklin Fink, Ed.D., Reading, and the Rotary Club of Allentown. Dr. Fink, principal of Southwest Jr. High School, Reading, was selected chiefly for his work in collecting funds for the treatment of children with cerebral palsy. He has also been director of Reading's first recreational center; chairman of the Free Eyeglass Fund for School Children; board member of the Pennsylvania Society for Crippled Children and Adults, Reading chapter president and a national officer of the American Business Clubs, and he now becomes the first two-time winner of the award in Berks County. The Rotary Club of Allentown has taken leadership in a variety of programs dealing with health, including a cerebral palsy nursing school, a preschool age hearing clinic, a health lodge at the Boy Scouts' Camp Trexler, aid to crippled children at camp, equipment for retarded children, and nursing scholarships. The two state winners will be presented with bronze medallions at the state dinner during the 105th annual meeting of the society in Pittsburgh on Sept. 20.

TEXAS

Industrial Health Conference.—The eighth annual Industrial Health Conference will be held Sept. 22-24 at the Shamrock-Hilton Hotel, Houston. The conference will open with official greetings by Roy A. Hofheinz, mayor, city of Houston. A symposium on agricultural health problems is scheduled for Thursday afternoon. Dr. Lemuel C. McGee, medical director, Hercules Powder Company, Wilmington, Del., will discuss "Problems of Agricultural Chemicals"; W. W. Armstead, dean, school of veterinary medicine, Texas A & M College, College Station, will consider "Diseases Transmittible to Man from Animals"; and Dr. H. Herman Young, Mayo Clinic, Rochester, Minn., will have as his topic "Accidents in Agricultural Operations." The Friday morning session will open with a symposium on rehabilitation, in which "Development of Rehabilitation Facilities" will be discussed by Dr. Robert L. Bennett, director, Georgia Warm Springs Foundation Clinic, and "Financial Aspects of Rehabilitation" by Mr. Standwood L. Hanson, vice-president, claims department, Liberty Mutual Insurance Company, Boston. The luncheon address will be delivered by Cyril L. Comar, PhD., of the Oak Ridge (Tenn.) Institute of Nuclear Studies. Dr. William P. Shepard, New York, will preside at the panel discussion Friday afternoon, presented by the A. M. A. Council on Industrial Health, of which he is Chairman. "Practical Applications of Current Research" will be considered at 2 p. m. and "Problems of Health in an Industrial Society" at 3 p. m. On Saturday morning Dr. Henry A. Holle, Austin, commissioner, state department of health, will speak on the industrial nurse's contribution to public health and Dr. Bennett on rehabilitation after injury. The afternoon will be devoted to a tour of the Light House for the Blind.

WASHINGTON

Obstetricians Meeting in Seattle.—The fall meeting of the Washington State Obstetrical Association will be held at the Washington Athletic Club, Seattle, Sept. 24. Guest speakers will be (1) Dr. Leroy A. Calkins, professor of obstetrics and gynecology, University of Kansas School of Medicine, Lawrence-Kansas City, whose topics will be "Bregma, Brow and Face, and Transverse Presentation" and "Fetal Mortality," and (2) Dr. Willis E. Brown, professor of obstetrics and gynecology, University of Arkansas School of Medicine, Little Rock, who will discuss "Management of Prolonged Labor" and "Clinical Experience with Eclampsia." Dr. R. Philip Smith of Seattle will be moderator of the noon round-table luncheon. At the banquet, Dr. Richard J. Blandau of the University of Washington School of Medicine will show a film of his work on ovulation.

WISCONSIN

New Headquarters of State Medical Society.—The offices of the State Medical Society of Wisconsin in Madison were transferred in June from 704 E. Gorham St. on Lake Mendota to 330 E. Lakeside St. on Lake Monona. The ground floor, which opens directly onto the lake side of the property, houses the Blue Shield administrative offices, service room, supply room,

Headquarters of State Medical Society of Wisconsin

kitchen, and dining room. The top floor provides space for the reception room, two consultation rooms, a secretary's office, library conference room, offices for administrative purposes, and a council room. The new headquarters afford a large parking area for employees and visiting physicians. It is anticipated that the building will be completed and ready for use about mid-October.

Home Therapy Service for Arthritic Patients.—The Wisconsin chapter of the Arthritis and Rheumatism Foundation has announced the establishment of a nursing and physical therapy service for home-bound patients, in cooperation with the Visiting Nurse Association. Services of the unit, which will be operated by a physical therapist from the Visiting Nurse Association, will be available to patients who are referred by their physician. Dr. Edwin C. Welsh, Milwaukee, is in charge of the program. Information may be obtained from the Wisconsin Chapter of the Arthritis and Rheumatism Foundation, 208 E. Wisconsin Ave. (BR 1-4131).

Personal.—Dr. Phillip R. McCanna, Marinette, has accepted an appointment in ophthalmology at the University of Illinois College of Medicine, Chicago.——Dr. James J. Foster, formerly of Madison, is the new medical director of the Milwaukee Cancer Diagnostic Clinic, succeeding Dr. Richard J. Krill, who left the clinic to complete residency training in surgery at Presbyterian Hospital, New York. Dr. Krill plans to return to Milwaukee after completing his training.——Dr. Errol V. Brumbaugh, West Allis health commissioner, and Dr. Fred B. Welch, Janesville health commissioner, have been awarded honorary life memberships in the Wisconsin Association for Public Health.

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GENERAL

Meeting of Southern Trudeau Society.—The Southern Trudeau Society will meet at the Brown Hotel, Louisville, Ky., Sept. 21-23. Subjects for discussion include tuberculosis and the general practitioner; problems in chemotherapy; and nontuberculous disease. A Pembine-type consecutive case conference will be presented Thursday evening by a group of Kentucky physicians, with Dr. John S. Harter, Louisville, as chairman.

Association of Nursing Homes.—The annual convention of the American Association of Nursing Homes will meet in the Auditorium, Kansas City, Mo., Sept. 19-21. Physicians who will address the association include Dr. William F. King, Indianapolis; Dr. John M. Whitney, Battle Creek, Mich., luncheon speaker, Tuesday; Dr. John W. Cronin, Washington, D. C., who will address the annual banquet Tuesday, 7 p. m.; and Dr. Edward H. Hashinger, Kansas City, Mo., who will address the luncheon meeting Wednesday.

Course on Venereal Disease.—The 24th Venereal Disease Postgraduate Course for physicians, sponsored by the University of Chicago and the Public Health Service, will be given at the university Sept. 26-30. The course, accredited by the American Academy of General Practice, is designed to acquaint the practitioner with the latest developments in diagnosis, treatment, and management of venereal disease. No tuition will be charged. Applications for admission should be sent to the Section on Dermatology, Department of Medicine, University of Chicago, Chicago 37.

Fellowships for Research in Arthritis.—The Arthritis and Rheumatism Foundation is offering the following research fellowships in the basic sciences related to arthritis: 1. Predoctoral fellowships ($1,500-$3,000 per annum, depending on the family responsibilities of the fellow), tenable for one year with prospect of renewal. 2. Postdoctoral fellowships ($4,000-$6,000 per annum, depending on family responsibilities), tenable for one year with prospect of renewal. 3. Senior fellowships for more experienced investigators ($6,000-$7,500 per annum), tenable for five years. The deadline for applications is Oct. 15. Applications will be reviewed and awards made in January, 1956.

Research Fellowships and Grants.—Applications for awards available July 1, 1956, will be received by the Life Insurance Medical Research Fund as follows: (1) postdoctoral research fellowships, until Oct. 15, 1955, with preference to those who wish to work on cardiovascular function and disease or related fundamental problems (minimum stipend $3,600, with allowances for dependents and necessary travel) and (2) grants to institutions in aid of research on cardiovascular problems, until Nov. 1, 1955. Support is available for physiological, biochemical, and other basic work broadly related to cardiovascular problems as well as for clinical research in this field. Predoctoral fellowships will not be offered by the fund this year. Information may be obtained from the Scientific Director, Life Insurance Medical Research Fund, 345 E. 46th St., New York 17.

Hospital Association Convention.—The 57th annual American Hospital Association convention and the 8th annual Conference of Hospital Auxiliaries will be held in Atlantic City, N. J., Sept. 19-22. Over 100 round-table discussions will supplement the four key general sessions. A postconvention cruise to Bermuda has been planned aboard the S. S. Queen of Bermuda, Sept. 24-30. The cost ($174.30—$245.80) includes room and meals, both aboard ship and in a resort hotel on the island, as well as a special tour of the island. The ship leaves New York City at 3 p. m. Saturday and returns on Friday. Persons who wish to remain on the island another two days may return by air (cost for this trip, $194.05—$229.80). Trip reservations should be sent to Aladdin Travel Service, 220 South State St., Suite 506, Chicago 4.

Frank L. Chance Research Fellowships.—The City of Hope National Medical Center, Duarte, Calif., announces that two Frank L. Chance Research Fellowships (one in hematology and one in medical oncology) will be available this year. Inquiries should be directed to Dr. Howard R. Bierman, scientific director, before Oct. 1. The fellowships were established by the late Mrs. Frank L. Chance in honor of her husband of baseball's famed double-play team, Tinker-to-Evers-to-Chance. Five fellowships are available each year for periods of one to three years. Fellows selected hold an appointment in the Medical Research Institute of the City of Hope Medical Center, with a dual title in one of the hospitals of the center if clinical research is to be done. The annual stipend varies from $3,600 to $5,000. The fellowships were designed to afford special training in the fields in which the City of Hope Medical Center is engaged: (1) tumors and allied diseases, (2) hematology, (3) cardiac disease amenable to surgery, and (4) cardiorespiratory diseases.

Tri-State Obstetric Seminar.—A seminar on obstetrics will be held at the Daytona Plaza Hotel, Daytona Beach, Fla., Sept. 12-14, under the sponsorship of the South Carolina Medical Association, the Medical Association of Georgia, the Florida Medical Association, and the bureaus of maternal and child health of the state health departments of South Carolina, Georgia, and Florida. The Monday program, which will be devoted to pediatrics, will open with a paper on immunization by Dr. Robert B. Lawson, Miami, Fla., after which "Health Supervision of Young Children" will be considered by Dr. Samuel M. Wishik, Pittsburgh. "Major Medical Problems Complicating Pregnancy" will be discussed on Tuesday by Dr. Norman Thornton and "Obstetrical Care in Rural Communities" by Dr. Robert A. Ross, Chapel Hill, N. C. The Wednesday session will include "Toxemia—Recent Advances in Treatment" by Dr. William J. Dieckmann, Chicago; "Afibrogenopenia in Pregnancy" by Dr. Carl P. Huber, Indianapolis; and "Anomalous Products of Pregnancy" by Dr. John L. Parks, Washington, D. C. All physicians are welcome. There is no registration fee.

Meeting on Medicinal Chemistry.—The 128th national meeting of the American Chemical Society will be held at the University of Minnesota, Minneapolis, Sept. 11-16. The fourth annual Symposium on Cancer will be presented Friday. Louis F. Fieser, Ph.D., Belmont, Mass., will preside at the morning session on "Metabolic Conversions of Steroids," which will include the following presentations:

Conversions of Steroids by Microorganisms, Albert Wettstein, Basle, Switzerland.
Biogenesis of Steroid Hormones, Ralph I. Dorfman, Ph.D., Shrewsbury, Mass.
Studies of the Steroid Hormones in Man, Thomas F. Gallagher, Ph.D., New York.

Dr. Charles B. Huggins, Chicago, will preside at the afternoon session on steroids and cancer, when the following presentations will be made:

Inherited Hormonal Mechanisms and Mammary Cancer in Mice, John J. Bittner, Ph.D., Minneapolis.
Endocrine Carcinogenesis, Eric S. Horning, London, England.
Endocrine Control of Neoplasms in Man, Olof H. Pearson, New York.

The Friday sessions will conclude with the chairman's summary by Dr. Huggins and the symposium summary by Dr. Cornelius P. Rhoads, New York.

Roentgen Ray Society.—The 56th annual meeting of the American Roentgen Ray Society will be held at the Palmer House, Chicago, Sept. 20-23. The meeting will be called to order at 8:30 a. m. by Dr. Joshua C. Dickinson, Tampa, Fla., president, after which Lawrence A. Kimpton, Ph.D., chancellor of the University of Chicago, will deliver the address of welcome. Dr. Paul C. Hodges, Chicago, who will be installed as president, will deliver his inaugural address, "Radiology in the Seventh Decade." The Caldwell Lecture, "A New Concept of the Etiology of Duodenal and Gastric Ulcer," will be given at 8:30 p. m. Tuesday by Dr. Lester R. Dragstedt, chairman, department of surgery, University of Chicago, to whom the medal of the society will be presented by Dr. Egbert H. Fell, Chicago. A symposium on gastrointestinal diseases has been scheduled for Wednesday morning and a symposium on supervoltage and megavoltage radiation therapy with various sources for Thursday morning. Some 36 persons will participate in the program by invitation. These include Dr. Carl Wegelius, Stockholm, Sweden; Dr. Charles C. Burkell and Thomas A. Watson, M.B., Saskatoon, Saskatchewan, Canada; and Dr. Ivan H. Smith, London, Ontario, Canada. The annual banquet Thursday evening will be preceded by cocktails at 6:30 p. m.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

Area	Aug. 20, 1955 Paralytic Type	Aug. 20, 1955 Total Cases Reported	Aug. 21, 1954, Total
New England States			
Maine	6	13	20
New Hampshire	..	41	9
Vermont	7	59	4
Massachusetts	264	448	67
Rhode Island	3	34	4
Connecticut	8	55	8
Middle Atlantic States			
New York	53	169	103
New Jersey	..	55	47
Pennsylvania	..	51	72
East North Central States			
Ohio	11	91	156
Indiana	10	26	46
Illinois	47	147	132
Michigan	18	94	159
Wisconsin	51	160	35
West North Central States			
Minnesota	14	62	53
Iowa	7	70	72
Missouri	7	13	40
North Dakota	1	5	11
South Dakota	..	3	7
Nebraska	7	23	36
Kansas	7	20	44
South Atlantic States			
Delaware	2	4	1
Maryland	11	23	9
District of Columbia	1	2	6
Virginia	6	27	30
West Virginia	2	9	16
North Carolina	9	43	57
South Carolina	5	21	14
Georgia	3	4	46
Florida	5	26	56
East South Central States			
Kentucky	13	36	47
Tennessee	5	20	22
Alabama	3	13	17
Mississippi	5	10	25
West South Central States			
Arkansas	6	10	17
Louisiana	8	16	31
Oklahoma	2	22	30
Texas	25	98	199
Mountain States			
Montana	4	9	6
Idaho	3	6	7
Wyoming	..	3	15
Colorado	10	18	23
New Mexico	3	5	8
Arizona	2	10	7
Utah	..	..	22
Nevada	..	1	9
Pacific States			
Washington	10	17	16
Oregon	7	14	18
California	26	71	325
Territories and Possessions			
Alaska	6	8	19
Hawaii	5	6	3
Puerto Rico	No report received	No report received	..
Total	648	2,152	2,226

Conference on Psychiatry.—The American Psychiatric Association will hold its Midwest Regional Research Conference Sept. 16-17 at Galesburg, Ill., with the cosponsorship of the University of Illinois College of Medicine, Chicago, and the Galesburg (Ill.) State Research Hospital. The conference, the theme of which is "A Comprehensive Evaluation of the Newer Psychopharmacologic Agents and Their Role in Current Psychiatric Practice," will be opened Friday at 9 a. m. by Dr. Otto L. Bettag, Chicago, director, Department of Public Welfare. The morning session will be devoted to "The Neurophysiology and Neuropharmacology of the New Drugs" (chairman, Dr. Percival Bailey, Chicago) and the afternoon session to "The Relative Values of Drugs in the Various Psychiatric Syndromes" (chairman, Dr. Jacques Gottlieb, Detroit). A cocktail hour (courtesy of Smith, Kline & French Laboratories) will precede dinner, 7 p. m., at the Hotel Custer. Dr. Lester H. Rudy, Galesburg, will serve as the chairman for the Saturday morning session on "The Significance and Management of the Complications Resulting from New Drugs," which will be addressed by Drs. Anthony A. Sainz, Marcy, N. Y., Douglas Goldman, Cincinnati, Frank J. Ayd Jr., Baltimore, and Vernon J. Kinross-Wright, Houston, Texas. A tour of the Thudichum Psychiatric Research Laboratory, Galesburg State Research Hospital, will precede luncheon at the hospital. Saturday afternoon will be devoted to a symposium, "The Role of Drug Therapies in Current and Future Psychiatric Practice," in which the moderator will be Dr. Francis J. Gerty, Chicago, and the participants Drs. C. Knight Aldrich and Jules H. Masserman, Chicago, Dr. Paul H. Hoch, New York, and Dr. Lauren H. Smith, Philadelphia.

LATIN AMERICA

Congress on Bronchoesophagology.—The fourth International Congress and fifth Argentine Congress of Bronchoesophagology will convene in Buenos Aires, Argentina, Oct. 28-29 to discuss (1) laryngotracheobronchopathies in children; (2) non-neoplastic stenosis of the esophagus; and (3) free subjects. Physicians wishing to participate must send their articles before Sept. 15 to the Secretary of the Congress, Dr. Juan C. Aráuz, Canjallo 4015, Buenos Aires, Argentina, S. A.

FOREIGN

Symposium on Disease Transmission.—The Institute of Biology will present a symposium, "Biological Aspects of the Transmission of Disease," at the London School of Hygiene, Keppel Street, London, W. C. 1, England, Sept. 29-Oct. 1.

Congress on Prophylactic Medicine.—The fourth International Congress of Prophylactic Medicine will be held in Bad Reichenhall, Germany, Sept. 30-Oct. 4. The subjects to be discussed include Climatology and Balneology; Environmental Influences; Care of the Healthy and of the Sick with Respect to Industrial Injuries; and Mental Hygiene.

Meeting on Obstetrics and Gynecology.—The 16th Congress of the Federation of French-Speaking Gynecologic and Obstetric Societies will convene at the Free University of Brussels, 50 av. Franklin Roosevelt, Brussels, Belgium, Sept. 22-26. Reports will be given on "Treatment of Congenital and Acquired Deformities of the Vulva and Vagina (Prolapse Excluded)," "Postpartum Endocrine Syndromes," and "Therapy of Pregnancy Toxicoses."

Course on Tomography.—The third International Course on Tomography will be held Oct. 3-12 at the Radiology Institute of the University of Genoa in Italy. Lectures on theory, geometric studies, technique and instruments, and applications of tomography in examination of several organs in the normal and the pathological subject will be presented, and special attention will be drawn to recent progress in tomographic method. Information may be obtained from the General Secretary, Dr. Luigi Oliva, Instituto di Radiologia, Ospedale S. Martino, Genoa, Italy.

International Meeting on Forensic Medicine.—The first International Congress of Medical Professional Jurisdiction, Medical Ethics, and Comparative Medical Law will be held in Paris from Sept. 30 to Oct. 3. Medical ethics will be considered under the following topics: (1) Moral Reasons for Medical Secrecy, (2) Consent of the Patient to Medical Action, (3) Independence of the Physician, and (4) Moral Conditions for the Application of New Methods of Diagnosis and Treatment. The meeting on comparative medical law will include a report based on replies to questionnaires sent to competent individuals and institutions in various countries, concerning (1) medical secrecy as affected by public and private methods of health insurance and (2) the conditions governing the practice of medicine. Fees for enrollment at the congress are 5,000 francs (about $14.50) for active members and 2,500 francs (about $7.50) for ladies. A social and recreational program is being arranged. Correspondence should be addressed to the Conseil National de l'Ordre des Medecins, 60, boulevard Latour-Maubourg, Paris (7e), France.

CORRECTION

Dosage of Corticotropin.—In the clinical note, "Corticotropin in Severe Agginose Infectious Mononucleosis," in THE JOURNAL, July 23, 1955, page 1021, fifth line, third paragraph, right-hand column, the doses given should read "15, 10, 7.5, 5, and 2.5 U. S. P. units for a total of 40 units."

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MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

NATIONAL CONFERENCE ON PHYSICIANS AND SCHOOLS, Moraine-on-the-Lake Hotel, Highland Park, Ill., Oct. 12-14. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago, Director.

ACADEMY OF PSYCHOSOMATIC MEDICINE, Hotel Plaza, New York, Oct. 6-8. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary.

AMERICAN ACADEMY FOR CEREBRAL PALSY, Claridge Hotel, Memphis, Tenn., Oct. 10-12. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary.

AMERICAN ACADEMY OF NEUROLOGICAL SURGERY, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, Palmer House, Chicago, Oct. 9-14. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Executive Secretary.

AMERICAN ACADEMY OF PEDIATRICS, Palmer House, Chicago, Oct. 3-6. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Executive Secretary.

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Curtis Hotel, Minneapolis, Nov. 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, LaSalle Hotel, Chicago, Oct. 3-7. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Director.

AMERICAN ASSOCIATION OF NURSING HOMES, Hotel Muehlebach, Kansas City, Mo., Sept. 19-21. Mr. Ira O. Wallace, P.O. Box 366, New Castle, Ky., Secretary.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

AMERICAN CLINICAL AND CLIMATOLOGICAL ASSOCIATION, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

AMERICAN COLLEGE OF GASTROENTEROLOGY, Edgewater Beach Hotel, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary.

AMERICAN COLLEGE OF HOSPITAL ADMINISTRATORS, Convention Hall, Atlantic City, N. J., Sept. 17-19. Mr. Dean Conley, 620 North Michigan Ave., Chicago 11, Executive Director.

AMERICAN COLLEGE OF SURGEONS, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

AMERICAN DENTAL ASSOCIATION, San Francisco, Oct. 17-20. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

AMERICAN FRACTURE ASSOCIATION, Hotel Fontainebleau, Miami Beach, Fla., Sept. 19-22. Dr. Homer D. Junkin, Paris Hospital, Paris, Ill., Secretary.

AMERICAN HEART ASSOCIATION, Yung Hotel, New Orleans, Oct. 22-26. Mr. Irving Hexter, 44 East 23d St., New York 10, Secretary.

AMERICAN HOSPITAL ASSOCIATION, Traymore Hotel, Atlantic City, N. J., Sept. 19-22. Dr. Edwin L. Crosby, 18 East Division St., Chicago 10, Director.

AMERICAN MEDICAL WRITERS' ASSOCIATION, Jefferson Hotel, St. Louis, Sept. 30-Oct. 1. Dr. Harold Swanberg, P.O. Drawer 110, Quincy, Ill., Secretary.

AMERICAN ROENTGEN RAY SOCIETY, Palmer House, Chicago, Sept. 20-23. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Drake Hotel, Chicago, Oct. 10-15. Dr. Clyde G. Culbertson, 1040-1232 West Michigan St., Indianapolis, Secretary.

AMERICAN SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGERY, Atlantic City, N. J., Sept. 25-30. Dr. Kenneth L. Pickrell, Duke Hospital Durham, N. C., Secretary.

AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Somerset Hotel, Boston, Nov. 2-5. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Chapel Hill, N. C., Secretary.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, New Ocean House, Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS AND SURGEONS, Chicago, Oct. 7-8. Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Executive Secretary.

ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA, Hotel Statler, New York, Oct. 19-21. Dr. Henry B. Kirkland, P. O. Box 594, Newark, N. J., Secretary.

ASSOCIATION OF MEDICAL ILLUSTRATORS, Hotel Barbizon Plaza, New York, Oct. 1-3. Miss Rose M. Reynolds, Univ. of Nebraska College of Medicine, Omaha 5, Neb., Corresponding Secretary.

CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS, Deshler-Hilton Hotel, Columbus, Ohio, Oct. 5-8. Dr. Edwin J. DeCosta, Suite 602, 116 S. Michigan Ave., Chicago 3, Secretary.

CENTRAL NEUROPSYCHIATRIC ASSOCIATION, The Broadmoor, Colorado Springs, Colo., Oct. 20-22. Dr. Hamilton Ford, 112 North Boulevard, Galveston, Tex., Secretary.

CENTRAL SOCIETY FOR CLINICAL RESEARCH, Drake Hotel, Chicago, Nov. 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

CLINICAL ORTHOPAEDIC SOCIETY, Skirvin Hotel, Oklahoma City, Sept. 30-Oct. 1. Dr. Marcus J. Stewart, 869 Madison Ave., Memphis, Tenn., Executive Secretary.

COLLEGE OF AMERICAN PATHOLOGISTS, Drake Hotel, Chicago, Oct. 10-15. Dr. Arthur H. Dearing, 203 N. Wabash Ave., Chicago 1, Executive Secretary.

COLORADO STATE MEDICAL SOCIETY, Shirley-Savoy Hotel, Denver, Sept. 20-23. Mr. Harvey T. Sethman, 835 Republic Bldg., Denver 2, Executive Secretary.

CONGRESS OF NEUROLOGICAL SURGEONS, Hotel Statler, Los Angeles, Oct. 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

DELAWARE, MEDICAL SOCIETY OF, Delaware Academy of Medicine, Wilmington, Oct. 17-18. Dr. Norman L. Cannon, 621 Delaware Ave., Wilmington, Secretary.

DISTRICT OF COLUMBIA, MEDICAL SOCIETY OF THE, Hotel Statler, Washington, D. C., Oct. 10-12. Mr. Theodore Wiprud, 1718 M St., N.W., Washington 6, D. C., Executive Director.

GERONTOLOGICAL SOCIETY, Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

GULF COAST CLINICAL SOCIETY, Pensacola, Fla., Oct. 27-28. Dr. Barkley Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

INDIANA STATE MEDICAL ASSOCIATION, French Lick Springs Hotel, French Lick, Oct. 16-19. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

INDUSTRIAL HEALTH CONFERENCE, Shamrock Hotel, Houston, Texas, Sept. 22-23. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Texas, Chairman.

KANSAS CITY SOUTHWEST CLINICAL SOCIETY, Municipal Auditorium, Kansas City, Mo., Oct. 3-6. Dr. W. M. Kitchen, 306 E. Twelfth St., Kansas City 6e, Mo., Secretary.

KENTUCKY STATE MEDICAL ASSOCIATION, Louisville, Sept. 27-29. Mr. J. P. Sanford, 620 S. Third St., Louisville, Executive Secretary.

MICHIGAN STATE MEDICAL SOCIETY, Pantlind Hotel, Grand Rapids, Sept. 26-30. Dr. L. Fernald Foster, 606 Townsend St., Lansing 5, Secretary.

MIDWEST CONFERENCE ON RHEUMATIC DISEASES, Henry Ford Hospital, Detroit, Oct. 5. Dr. J. J. Lightbody, 7338 Woodward Ave., Detroit 2, Medical Director.

MIDWESTERN SECTION OF AMERICAN FEDERATION FOR CLINICAL RESEARCH, Thorne Hall, Northwestern University, and Drake Hotel, Chicago, Nov. 3. Dr. Robert J. Glaser, Barnes Hospital, St. Louis 10, Secretary.

MISSISSIPPI VALLEY MEDICAL SOCIETY, Jefferson Hotel, St. Louis, Sept. 28-30. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

MISSISSIPPI VALLEY TRUDEAU SOCIETY, Hotel Savery, Des Moines, Iowa, Oct. 14. Dr. Harold G. Curtis, Sunny Acres, Cuyahoga County Tuberculosis Hospital, Cleveland 22, Chairman, Program Committee.

MONTANA MEDICAL ASSOCIATION, Baxter Hotel, Bozeman, Sept. 15-18. Mr. L. R. Hegland, P.O. Box 1692, Billings, Executive Secretary.

NATIONAL ASSOCIATION FOR MENTAL HEALTH, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

NEW HAMPSHIRE MEDICAL SOCIETY, Mt. Washington Hotel, Bretton Woods, Sept. 29-Oct. 1. Dr. Warren H. Butterfield, 18 School St., Concord, Secretary.

NORTH TEXAS-SOUTHERN OKLAHOMA FALL CLINICAL CONFERENCE, Wichita Falls, Tex., Sept. 17. Dr. E. C. Bebb, Broad St., Wichita Falls, Tex., Chairman.

OKLAHOMA CITY CLINICAL SOCIETY CONFERENCE, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

OMAHA MID-WEST CLINICAL SOCIETY, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

OREGON STATE MEDICAL SOCIETY, Hotel Heathman, Portland, Sept. 28-Oct. 1. Dr. Richard R. Carter, 1020 S.W. Taylor St., Portland 5, Secretary.

PENNSYLVANIA, MEDICAL SOCIETY OF THE STATE OF, William Penn Hotel, Pittsburgh, Sept. 18-23. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

POSTGRADUATE ASSEMBLY IN ENDOCRINOLOGY AND METABOLISM, Indianapolis, Sept. 26-Oct. 1. Dr. John J. Mahoney, Assistant Dean, Indiana University School of Medicine, 1040 W. Michigan St., Indianapolis 7.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

Billings, Mont., Oct. 7-8. Dr. Harold W. Gregg, 103 North Wyoming St., Butte, Governor.

Charleston, S. C., Oct. 7-8. Dr. Robert Wilson, 165 Rutledge Ave., Charleston, S. C., Governor.

Buffalo, N. Y., Oct. 14. Dr. John H. Talbot, 100 High St., Buffalo 3, N. Y., Governor.

Madison, Wis., Oct. 15. Dr. Frederick W. Madison, 425 East Wisconsin Ave., Milwaukee 2, Governor.

Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.

TENNESSEE VALLEY MEDICAL ASSEMBLY, Read House, Chattanooga, Tenn., Oct. 3-4. Dr. Harry E. Jones, 109 Medical Arts Bldg., Chattanooga 2, Tenn., Secretary.

THE CONSTANTINIAN SOCIETY, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, Toledo 1, Ohio, Secretary.

TRI-STATE MEDICAL SOCIETY, Grim Hotel, Texarkana, Tex., Sept. 28-29. Dr. Karlton H. Kemp, 408 Hazel St., Texarkana, Ark., Secretary.

U. S. CHAPTER, INTERNATIONAL COLLEGE OF SURGEONS, Convention Hall, Philadelphia, Sept. 12-15. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

VERMONT STATE MEDICAL SOCIETY, Mt. Washington Hotel, Bretton Woods, N. H., Sept. 29-Oct. 1. Dr. James P. Hammond, 337 South St., Bennington, Secretary.

VIRGINIA, MEDICAL SOCIETY OF, Hotel Jefferson, Richmond, Oct. 16-19. Mr. Robert I. Howard, 105 West Franklin St., Richmond, Executive Secretary.

WASHINGTON STATE MEDICAL ASSOCIATION, Olympic Hotel, Seattle, Sept. 11-14. Dr. Frederick A. Tucker, 1309 Seventh Ave., Seattle 1, Secretary.

WESTERN ASSOCIATION OF RAILWAY SURGEONS, Las Vegas, Nev., Sept. 22-24. Dr. Leo L. Stanley, 1322 Fifth Ave., San Rafael, Calif., Secretary.

FOREIGN AND INTERNATIONAL

CANADIAN SOCIETY FOR THE STUDY OF FERTILITY, Royal York Hotel, Toronto, Ont., Canada, Oct. 6-8. Dr. Earl R. Plunkett, 469 Waterloo St., London, Ont., Canada, Secretary.

CONFERENCE OF INTERNATIONAL UNION FOR HEALTH EDUCATION OF THE PUBLIC, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

CONGRESS OF INTERNATIONAL ASSOCIATION OF LIMNOLOGY, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

CONGRESS OF INTERNATIONAL ASSOCIATION OF LOGOPEDICS AND PHONIATRICS, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

CONGRESS OF INTERNATIONAL SOCIETY OF HEMATOLOGY, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

CONGRESS OF INTERNATIONAL SOCIETY FOR RESEARCH ON ANESTHESIA, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

CONGRESS OF INTERNATIONAL UNION OF RAILWAY MEDICAL SERVICES, Dubrovnik, Yugoslavia, Sept. 19-24. Dr. Jovanovic, Head Office, Yugoslav Railway, Belgrade, Yugoslavia, President.

CONGRESS OF INTERNATIONAL UNION AGAINST VENEREAL DISEASES, Naples, Italy, Sept. 25-28. For information address: Prof. Monacelli, University of Naples, Dept. of Dermatology, Naples, Italy.

CONGRESS OF LATIN SOCIETY OF OPHTHALMOLOGY, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

EUROPEAN CONGRESS OF ALLERGOLOGY, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

EUROPEAN SYMPOSIUM ON VITAMIN B12, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

INTERNATIONAL ACADEMY OF LEGAL AND SOCIAL MEDICINE, Plenary Conference, Genoa, Italy, Oct. 13-17. Prof. Domenico Macaggi, Institut de Medicine legale, Universite de Genes, Genes, Italy, President.

INTERNATIONAL ACADEMY OF PATHOLOGY, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

INTERNATIONAL CONGRESS OF ALLERGOLOGY, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7e, France, Secretary General.

INTERNATIONAL CONGRESS OF ANTHROPOLOGICAL AND ETHNOLOGICAL SCIENCES, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF CRIMINOLOGY, London, England, Sept. 11-18. For information write: Dr. Carroll, 28 Weymouth St., London, W.1, England.

INTERNATIONAL CONGRESS OF EUROPEAN SOCIETY OF HAEMATOLOGY, Freiburg i.Br., Germany, Sept. 20-24. Prof. Dr. L. Heilmeyer, Hugstetter Strasse 55, Freiburg i.Br., Germany, Chairman.

INTERNATIONAL CONGRESS FOR THE HISTORY OF SCIENCE, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

INTERNATIONAL CONGRESS OF HYDATID DISEASE, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, Buenos Aires, Argentina, S. A., Nov. 19-24, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF INTERNATIONAL SOCIETY OF BRONCHOESOPHAGOLOGY, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

INTERNATIONAL CONGRESS OF LIBRARIANSHIP AND DOCUMENTATION, Brussels, Belgium, Sept. 11-18. For information write: Dr. A. C. Breycha-Vauthier, Librarian, United Nations, Geneva, Switzerland.

INTERNATIONAL CONGRESS OF MEDICAL PROFESSIONAL JURISDICTION, MEDICAL ETHICS, AND COMPARATIVE MEDICAL LAW, Paris, France, Sept. 30-Oct. 3. Dr. J. R. DeBray, Conseil National de L'Ordre des Medécins, 60, Boulevard Latour-Maubourg, Paris 7e, France, Secretary General.

INTERNATIONAL CONGRESS OF NEO-HIPPOCRATIC MEDICINE, Montecatini, Terme, Italy, May 20-22, 1956. Prof. P. Delore, 13 rue Jarente, Lyon, France, Secretary-General.

INTERNATIONAL CONGRESS OF NEUROPATHOLOGY, London, England, Sept. 12-17. Dr. W. H. McMenemey Maida Vale Hospital for Nervous Diseases, London, W.9, England, Secretary.

INTERNATIONAL CONGRESS OF PAEDIATRICS, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

INTERNATIONAL CONGRESS OF PHYSICAL MEDICINE, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

INTERNATIONAL CONGRESS OF RADIOLOGY, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

INTERNATIONAL CONGRESS OF WORLD CONFEDERATION FOR PHYSICAL THERAPY, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

INTERNATIONAL GENERAL MEDICAL CONGRESS, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

INTERNATIONAL PHYSIOLOGICAL CONGRESS, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

INTERNATIONAL PROFESSIONAL UNION OF GYNECOLOGISTS AND OBSTETRICIANS, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS, Stockholm, Sweden, Sept. 15-17. For information write: Prof. Ture Petren, Karolinska Institutet, Stockholm 60, Sweden.

MEDICAL JOURNALISM MEETING, Vienna, Austria, Sept. 23. For information address: World Medical Association, 345 East 46th St., New York, N. Y., U.S.A.

NEURORADIOLOGIC SYMPOSIUM, London, England, Sept. 13-17. Dr. R. D. Hoare, National Hospital, Queen Square, London, W.C.1, England, Secretary.

NORTH QUEENSLAND MEDICAL CONFERENCE, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O. Box 672, Cairns, N.Q., Australia, Secretary.

PAN AMERICAN CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, Mendoza City, Argentina, S. A., Oct. 22-26. For information address: Secretary, Caseros Av. 2154, Buenos Aires, Argentina, S. A.

PAN AMERICAN CONGRESS OF OPHTHALMOLOGY, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

PAN AMERICAN MEDICAL SOCIAL CONVENTION, Bogota, Colombia, S. A., Oct. 15-22. Dr. Leopoldo E. Araujo, Avenida de los Presidentes Num. 506, Apartado 2589, La Habana, Cuba, Secretary.

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

VENEZUELAN CONGRESS OF MEDICAL SCIENCES, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

WORLD CONGRESS ON FERTILITY AND STERILITY, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

WORLD MEDICAL ASSOCIATION, Vienna, Austria, Sept. 20-26. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., U. S. A., Secretary General.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 19-21. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery.

ARIZONA:* *Examination.* Phoenix, Oct. 12-14. *Reciprocity.* Phoenix, Oct. 15. Exec. Sec., Mr. Robert Carpenter, 411 Security Bldg., Phoenix.

ARKANSAS:* *Examination.* Little Rock, Nov. 10-11. Sec., Dr. Joe Verser, Harrisburg.

CALIFORNIA: *Written.* Sacramento, Oct. 17-20. *Oral and Clinical Examinations for Foreign Medical School Graduates.* San Francisco, Nov. 13. *Oral Examination for Reciprocity Applications.* San Francisco, Nov. 12. Sec., Dr. Louis E. Jones, Room 536, 1020 N St., Sacramento.

COLORADO:* *Examination.* Denver, Dec. 6-7. Final date for filing application is Nov. 4. *Reciprocity.* Denver, Oct. 11. Final date for filing application is Sept. 12. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

CONNECTICUT:* *Regular. Examination.* Hartford, Nov. 8-10. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, Nov. 8-19. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: *Examination.* Dover, Jan. 10-12. *Reciprocity* Dover, Jan. 19. Sec., Dr. Joseph S. McDaniel, Dover.

FLORIDA:* *Examination.* Miami Beach, Nov. 20-21. Sec., Dr. Homer L. Pearson, 901 N. W. 17th St., Miami.
GEORGIA: *Examination.* Atlanta, Oct. 5-6. *Reciprocity.* Atlanta, Oct. 7. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.
IDAHO: *Examination and Reciprocity.* Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.
ILLINOIS: *Examination and Reciprocity.* Chicago, Oct. 11-13. Supt. of Registration, Mr. Fredric B. Selcke, State House, Springfield.
INDIANA: *Examination.* Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.
KANSAS: *Examination and Endorsement.* Topeka, Dec. 7-8. Sec., Dr. Lyle F. Schmaus, New Brotherhood Bldg., Kansas City.
KENTUCKY: *Examination.* Louisville, Dec. 5-7. Asst. Sec., Mr. R. F. Dixon, 620 S. 3rd St., Louisville.
MAINE: *Examination and Reciprocity.* Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, Portland.
MARYLAND: *Examination.* Baltimore, Dec. 13-16. Exec. Sec., Miss Hannah A. McCarthy, 1215 Cathedral St., Baltimore 1.
MICHIGAN:* *Examination.* Lansing, Oct. 12-14. Sec., Dr. J. Earl McIntyre, 118 Stevens T. Mason Bldg., Lansing.
MINNESOTA:* *Examination and Reciprocity.* Minneapolis, Oct. 18-20. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.
MISSISSIPPI: *Reciprocity.* Jackson, December. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.
MISSOURI: *Examination and Endorsement.* St. Louis, Oct. 21-22. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.
MONTANA: *Examination and Reciprocity.* Helena, Oct. 4-5. Sec., Dr. Sidney A. Cooney, 7 West 6th Ave., Helena.
NEBRASKA:* *Examination.* Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.
NEVADA:* *Examination and Reciprocity.* Reno, Oct. 4. Sec., Dr. G. H. Ross, 112 North Curry St., Carson City.
NEW HAMPSHIRE: *Examination and Reciprocity.* Concord. Sept. 14. Sec., Dr. John S. Wheeler, 107 State House, Concord.
NEW JERSEY: *Examination.* Trenton, Oct. 18-21. Sec., Dr. Patrick H. Corrigan, 28 W. State St., Trenton.
NEW MEXICO:* *Examination and Reciprocity.* Santa Fe, Nov. 21-22. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.
NEW YORK: *Examination.* Albany, Buffalo, New York City and Syracuse, Oct. 4-7. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.
NORTH CAROLINA: *Reciprocity.* Asheville, Oct. 31. Sec., Dr. Jos. J. Combs, 716 Professional Bldg., Raleigh.
NORTH DAKOTA: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.
OHIO: *Reciprocity.* Columbus, Oct. 4. *Examination.* Columbus, Dec. 15-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.
OKLAHOMA:* *Endorsement.* Oklahoma City, Sept. 4. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.
OREGON:* *Reciprocity.* Portland, Oct. 13-15. *Examination.* Portland, January. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.
PENNSYLVANIA: *Examination.* Philadelphia, January. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.
RHODE ISLAND:* *Examination.* Providence, Oct. 6-7. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.
SOUTH CAROLINA: *Examination.* Columbia, Nov. 7. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.
SOUTH DAKOTA:* *Examination.* Sioux Falls, Jan. 17-18. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.
TENNESSEE:* *Examination.* Memphis, Sept. 28-29. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.
TEXAS:* *Examination and Reciprocity.* Galveston, Dec. 1-3. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.
VIRGINIA: *Examination.* Richmond, Dec. 7-9. *Reciprocity.* Richmond, Dec. 6. Final date for filing application is Nov. 21. Address the Secretary, 631 First St. S.W., Roanoke.
WEST VIRGINIA: *Reciprocity.* Charleston, Oct. 10. Sec., Dr. N. H. Dyer, Charleston 5.
WISCONSIN:* *Reciprocity.* Madison, Oct. 21. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.
WYOMING: *Examination.* Cheyenne, Oct. 3. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.
ALASKA:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.
GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.
HAWAII: *Examination.* Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.
VIRGIN ISLANDS: *Examination and Endorsement.* St. Thomas, Nov. 8-9. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: *Examination.* Tucson, Sept. 20. Sec., Dr. H. D. Rhodes, University of Arizona, Tucson.
ARKANSAS: *Examination.* Little Rock, Oct. 4. Sec., Dr. S. C. Dellinger, Zoology Dept., University of Arkansas, Fayetteville.
COLORADO: *Examination.* Denver, Sept. 7-8. Final date for filing application is Aug. 24. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.
CONNECTICUT: *Examination.* New Haven, Oct. 8. Address: State Board of Healing Arts, 258 Bradley St., New Haven 10.
DISTRICT OF COLUMBIA: *Examination.* Washington, Oct. 24-25. Deputy, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington 6.
FLORIDA: *Examination.* Gainesville, Nov. 5. Sec., Mr. M. W. Emmel, Box 340, Gainesville.
IOWA: *Examination.* Des Moines, Oct. 11. Sec., Mr. Ben H. Peterson, Coe College, Cedar Rapids.
MICHIGAN: *Examination and Endorsement.* Detroit and Ann Arbor, Oct. 14-15. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.
MINNESOTA: *Examination.* Minneapolis, Oct. 4-5. Sec., Mr. Raymond N. Bieter, 126 Millard Hall, University of Minnesota Campus, Minneapolis.
NEBRASKA: *Examination.* Omaha, Oct. 4-5. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.
NEVADA: *Examination.* Reno, Oct. 4. Sec., Dr. Donald G. Cooney, Box 9005, University of Nevada, Reno.
OREGON: *Examination.* Portland, Sept. 10 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.
SOUTH DAKOTA: *Examination.* Vermillion, Dec. 2-3. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.
TENNESSEE: *Examination.* Memphis, Sept. 22-23. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.
TEXAS: *Examination.* Austin and Houston, Oct. 21-22. Sec., Brother Raphael Wilson, 407 Perry-Brooks Bldg., Austin.
WISCONSIN: *Examination.* Madison, Sept. 23; Milwaukee, Dec. 3. Sec., Mr. William H. Barger, 621 Ransom St., Ripon.
ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

*Basic Science Certificate required.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Sept. 12

NBC-TV, 9 p. m. EDT. "Medic" presents "Walk with Lions."

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" inaugurates a weekly series of programs with a live remote pickup from the Mayo Clinic. Subject will be the heart-lung bypass. Presented in cooperation with the American Medical Association.

Wednesday, Sept. 14

NBC-TV, 11:30 a. m. EDT. "Medical and Health News with Howard Whitman," a part of the "Home" program.

MAGAZINES

Saturday Evening Post, Sept. 3, 1955

"Surgery Restored My Sight," by Paul W. Kearney

A personal experience story combined with factual information on the surgical removal of cataracts.

The American Magazine, September, 1955

"Man in the Middle," by Clarence Woodbury

The story of Basil O'Connor and his work with the National Foundation for Infantile Paralysis. One paragraph says: "Organized doctors, fearing that O'Connor's practice of paying the bills of polio patients was a step toward socialized medicine, took a slap at him, too. When it was proposed to the American Medical Association that an award be granted to O'Connor as a non-doctor who had made big contributions to medicine, the proposal was voted down."

Redbook, September, 1955

"We Saved the Lives of 22 Children," by Llewellyn Miller

How the town of Gary, Ind., mobilized to treat residents bitten by rabid dogs and prevented the spread of the disease.

Family Weekly Magazine, Sept. 3, 1955

"How to Master Your Fears," by Dr. Franz Alexander and Francesca Alexander

If people with anxieties and fears need special help in solving their problems, the author recommends they consult an expert. Among those listed are the family doctor and a psychiatrist.

GOVERNMENT SERVICES

ARMY

Colonel Glattly Promoted to Brigadier General.—On the eve (July 28) of becoming surgeon of the First Army, Col. Harold Glattly was promoted to brigadier general at a ceremony presided over by Major Gen. Silas B. Hays, the surgeon general. General Glattly will have his headquarters on Governors Island in New York City. For the past four years he has been chief of the personnel division in the surgeon general's office. General Glattly was a prisoner of the Japanese from April 9, 1942, to Sept. 6, 1945. He has been awarded, among others, the Bronze Star, the Asiatic-Pacific medal, the Legion of Merit, the Army Commendation Ribbon, and the Silver Star with Oak Leaf Cluster.

NAVY

New Senior Medical Student Program Offered.—Medical students commissioned as ensigns 1995, U. S. N. R., and about to enter their final year of medical school are eligible to apply for the new ensign 1995 senior medical student program that permits the Navy to sponsor education for medical students who have selected the Navy as the service of their choice. Candidates must meet the following requirements: (*a*) be commissioned an ensign 1995 (medical) U. S. N. R., (*b*) be accepted for enrollment in a school of medicine accredited by the American Medical Association, (*c*) meet the physical standards established for regular Navy staff corps officers, (*d*) on completion of medical school agree to accept a regular Navy commission, and, if a regular commission is not tendered, accept a commission in the Naval Reserve, (*e*) agree to participate in the National Intern Matching Plan. In the event the individual is not matched with the Navy, he must accept a superseding appointment in the Naval Reserve and will be in an inactive status while completing a civilian internship not to exceed 12 months. On completion of this internship, a regular commission must be accepted if tendered. Ensign 1995 (medical) officers, if selected, will be ordered to active duty at the medical school where enrolled, and, while in attendance and successfully pursuing their professional studies will receive the full pay and allowance of their rank.

Pay and allowances are based on longevity as follows: (*a*) less than two years and no dependents—$338.58 per month; with dependents, $355.68 per month, (*b*) over two but less than three years and no dependents—$353.40 per month; with dependents, $370.50 per month, (*c*) over three but less than six years and no dependents—$412.68 per month; with dependents, $429.78 per month, (*d*) over six but less than eight years and no dependents—$428.28 per month; with dependents, $445.38 per month. Ensigns 1995 availing themselves of this senior medical student training and accepting an appointment in the regular Navy will be obligated to serve on active duty at the discretion of the Secretary of the Navy for a minimum period of three years excluding the period served as a senior medical student and in an internship. Applications are currently being processed at all recruiting stations and offices of naval officer procurement, where more detailed information may be obtained.

Personal.—Rear Adm. H. Lamont Pugh, M. C., former surgeon general of the Navy, reported to the Bureau of Medicine and Surgery on Aug. 12 for duty as inspector general of medical department activities, relieving Rear Adm. James R. Fulton, who has been ordered to duty as district medical officer, fourth naval district.——Capt. John Philip Brady and Capt. Arthur William Loy, M. C., were placed on the retired list on Aug. 1. Capt. Brady had more than 30 years of service in the Naval Medical Corps, and Capt. Loy had more than 29 years of service.

PUBLIC HEALTH SERVICE

Poliomyelitis Vaccine.—The Public Health Service has announced the allotment of funds to each state under the 30 million dollar poliomyelitis vaccine assistance act signed Aug. 12 by President Eisenhower. The new law apportions the money in accordance with a formula involving the number of unvaccinated children under age 20 and expectant mothers in each state, the relative per capita income of the state, and the per capita cost of vaccine. Of the 30 million dollars that Congress appropriated, 25 million dollars is available only for the purchase of vaccine and 5 million dollars may be used for the costs of planning and conducting poliomyelitis immunization programs or for the purchase of vaccine. The funds are to be used by Feb. 15, 1956. Under the law a single official agency in each state will be designated for the program and will submit a plan to the Public Health Service when applying for its allocated payment. While permitting the use of this vaccine by private physicians and by nonprofit organizations as well as by public agencies, the law provides that in vaccination programs conducted by public agencies no "means test" may be used to limit eligibility. The law restricts the use of vaccine purchased with these funds to pregnant women and to children under 20. The poliomyelitis vaccine assistance act is separate from the voluntary plan that went into effect July 31 for allocation of the vaccine during the period of short supply. Under the voluntary allocation plan, the Public Health Service allocates the supply.

The release and allocation of 1,177,000 cc. of poliomyelitis vaccine to the states and territories was announced Aug. 9 by the Public Health Service. It is the second allocation of new vaccine under the voluntary control plan for the vaccine. Under the voluntary control plan, this allocation, like the first, will be distributed in the states through both public agencies and to private physicians through normal commercial drug channels. The share that each state receives is governed by the state's proportion of unvaccinated children in the 5 through 9 year age group, which is the current priority group. Each state decides how much of its share it will distribute through public agencies and how much through commercial channels. In addition to the 1,177,000 cc., which was produced by the Wyeth Laboratories, Inc., the Public Health Service also announced the release of some 287,000 cc. produced by the Pitman-Moore Company, which the company will make available to the National Foundation for Infantile Paralysis for use in its program of immunization of first and second graders.

The Food and Drug Administration will hire 48 temporary investigators to enforce the federal prescription drug law against possible "black market" distribution of the Salk poliomyelitis vaccine. The activities of the FDA will be carried out in connection with the voluntary plan for allocation of the vaccine. An appropriation of $300,000 was made by Congress in order to cover the expenses of this special FDA program. The 48 special investigators will check on the distribution of the vaccine for the purpose of accounting for all of the vaccine that is made or shipped. Such checkups will be considered complete in regard to any particular lot of vaccine when the FDA has a record indicating its total distribution into legal channels; i. e., when it has been determined that the vaccine is in the hands of a physician, a hospital, a state or local health department, or other authorized persons or agencies.

Immunization for Foreign Travel.—A supplement to the booklet "Immunization Information for International Travel," recently released by the Public Health Service, carries changes in immunization requirements from June, 1954, to June, 1955. Persons having a 1954 edition of the booklet may obtain copies of the supplement, free of charge, from the U. S. Public Health Service, Division of Foreign Quarantine, Washington 25, D. C. The booklet, including the new supplement, may be purchased for 20 cents from Superintendent of Documents, Government Printing Office, Washington 25, D. C. A 25% discount is allowed on orders of 100 copies or more delivered to the same address.

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DEATHS

Fein, Maxwell Janeway ✦ New York City; born May 18, 1894; Long Island College Hospital, Brooklyn, 1917; specialist certified by the American Board of Pathology; instructor of pathology at the Bellevue Hospital Medical School from 1922 to 1926; clinical professor of pathology at the New York Post Graduate Medical School and Hospital, Columbia University, from 1942 to 1947; clinical professor of pathology at the New York University College of Medicine and the New York Post-Graduate Medical School; visiting professor of pathology at Rutgers University in New Brunswick, N. J., from 1949 to 1951, and visiting professor of pathology at Seton Hall University, South Orange, N. J., since 1948; a founder of the Blue Shield movement in New York, and a vice-president of the United Medical Service; founding fellow, governor, and member of the executive committee of the College of American Pathologists; fellow of the American Society of Clinical Pathologists; member of the World Medical Association, New York Academy of Sciences, and the American Public Health Association; since 1938 secretary-treasurer of the New York State Society of Pathologists; secretary of the section on pathology and clinical pathology of the Medical Society of the State of New York; in charge of Army hospital laboratories during World War I; on advisory committees on State Nurse and Professional Placement, New York City Community College of Applied Arts and Sciences, and the committee on cancer and results of the American Cancer Society; director of laboratories, Broad Street Hospital in New York City, from 1919 to 1928, Mountainside Hospital in Montclair, N. J., from 1928 to 1943, Madison Park Hospital in Brooklyn, from 1928 to 1940, Unity Hospital, Brooklyn, since 1928, where he was consultant pathologist, Adelphi Hospital in Brooklyn, from 1932 to 1949, serving as consultant pathologist, and the Murray Hill Hospital in New York City from 1940 to 1947; from 1920 to 1928 pathologist at the Cumberland Hospital in Brooklyn and the Brooklyn Cancer Hospital; director of the laboratory at the Wickersham Hospital since 1935, Shore Road Hospital since 1930, and director and owner of Laboratories of Dr. M. J. Fein since 1928; at the time of his death consultant pathologist at the Morristown (N. J.) Hospital, Princeton (N. J.) Hospital, South Nassau Communities Hospital, Rockville Centre, Veterans Administration Regional Office, and the Esso Standard Oil Company; died in the New York Hospital July 14, aged 61, of cancer of the lung.

Meeker, William Raymond ✦ Mobile, Ala.; born in Hazel Dell, Ill., June 2, 1889; Rush Medical College, Chicago, 1920; interned at the Cook County Hospital in Chicago; served as instructor in anatomy at the University of Chicago, assistant professor of pathology at Loyola University in Chicago, and professor of pathology at the University of Arkansas in Little Rock, where he was medical director of the City Hospital; spent four years as staff member at the Mayo Clinic, Rochester, Minn., after which he was assistant professor of surgery at the University of Illinois College of Medicine in Chicago; certified by the National Board of Medical Examiners; member of the founders group of the American Board of Surgery; fellow of the International College of Surgeons and the American College of surgeons; past-president, Gulf Coast Clinical Society; active member of the Southeastern Surgical Congress and the Southern Medical Association; past-president of the staffs of the Mobile Infirmary, Providence Hospital, Mobile City Hospital, and Blessed Martin de Porres Hospital; captain in the Medical Corps of the U. S. Naval Reserve during World War II; died July 22, aged 66, of coronary occlusion.

Barkoff, Samuel ✦ New Orleans; born in New Orleans Nov. 26, 1912; Tulane University of Louisiana School of Medicine, New Orleans, 1934; served on the faculty of his alma mater; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychoanalytic Association and the American Psychiatric Association; president-elect of the New Orleans Psychoanalytic Society; consultant for the department of public welfare for the state of Mississippi and consultant for the division of vocational education of Louisiana State Department of Education; on the staff of the Touro Infirmary; died July 11, aged 42.

Kowalski, Henry John ✦ Seattle; born in Grand Rapids, Mich.; July 2, 1916; University of Michigan Medical School, Ann Arbor, 1944; specialist certified by the American Board of Internal Medicine; certified by the National Board of Medical Examiners; served with the Army Medical Corps in Korea; interned at the Massachusetts General Hospital in Boston, where he served a residency at the Boston City Hospital; instructor in medicine at Harvard Medical School from 1951 to 1953; on the faculty at the University of Washington Medical School; a staff member of the Swedish, Providence, Doctors, and King County hospitals and the Veterans Administration Hospital, where he died July 20, aged 39, of pulmonary artery thrombosis.

Lorenz, Thomas Holt ✦ Madison, Wis.; born in Madison Feb. 26, 1920; University of Wisconsin Medical School, Madison, 1944; interned at the Evanston Hospital in Evanston, Ill.; formerly a resident at the State of Wisconsin General Hospital in Madison and the New York Hospital in New York City; assistant professor of medicine at his alma mater; lieutenant colonel in the National Guard and commander of the 135th medical battalion; during a three year service period in the Medical Reserve Corps of the U. S. Army was stationed in the European theater of operations for 18 months during the German occupation; died in Camp McCoy, Sparta, June 16, aged 35, of coronary occlusion.

Friedman, Arnold Leo ✦ Rockville Centre, N. Y.; born in New York City Aug. 27, 1917; University of Michigan Medical School, Ann Arbor, 1942; specialist certified by the American Board of Surgery; affiliated with the Meadowbrook Hospital in Hempstead, where he served an internship; served a residency in pathology at the New York Post Graduate Medical School and Hospital in New York City and in surgery at the Mount Sinai Hospital in Cleveland; on the staffs of the Mercy and South Nassau Communities hospitals; served during World War II; died in the Long Island College Hospital, Brooklyn, July 31, aged 37, of a brain tumor.

Aitkens, Herbert Baber ✦ Le Center, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1893; member of the school board; served on the staff of St. Joseph's Hospital in Mankato; died June 6, aged 88, of senility.

Bentley, Neil Isaac ✦ Detroit; University of Michigan Homeopathic Medical School, Ann Arbor, 1906; on faculty of Detroit Homeopathic Medical College; specialist certified by American Board of Ophthalmology and American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; consultant on the staffs of the Florence Crittenden Hospital and Grace Hospital, where he died June 22, aged 73, of coronary thrombosis.

Bernard, C. Henry ✦ Cleveland; University of Kansas School of Medicine, Kansas City, Kan., 1930; served during World War II; interned at St. Alexis Hospital; on the staff of the Children's Hospital in Akron, where he was formerly a resident in the City Hospital; died May 20, aged 52, of coronary heart disease.

Blackwelder, Glenn Elvin ✦ Chico, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1947; served during World War II; died June 23, aged 34, of pneumonia.

Bolin, Herbert Julian ✦ Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1915; past-president of the Knox County Medical Society; died in Fort Sanders Hospital May 12, aged 66, of primary pulmonary emphysema.

✦ Indicates Member of the American Medical Association.

Brown, Hugo Otto, Magnolia Springs, Ala.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1910; died in Mobile July 10, aged 67, of coronary occlusion.

Bunshaw, Albert Hudson ✦ Erie, Pa.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; for many years on the staff of St. Vincent's Hospital; died June 29, aged 74, of a heart attack.

Burkhart, Victor H. ✦ Hurst, Ill.; Chicago College of Medicine and Surgery, 1910; served as mayor; died in the Doctors Hospital, Carbondale, July 27, aged 72, of coronary disease.

Carr, Joseph Thompson ✦ Moselle, Miss.; Kentucky University Medical Department, Louisville, 1905; died in Methodist Hospital, Hattiesburg, Aug. 5, aged 80.

Cavanaugh, Leo Martin, Takoma Park, Md.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1913; past-secretary of the Allegany County Medical Society; served during World Wars I and II; for many years consultant for the Veterans Administration; died in Mount Alto Veterans Administration Hospital, Washington, D. C., July 16, aged 67, of cancer.

Champion, William Leon ✦ Atlanta, Ga.; College of Physicians and Surgeons, Baltimore, 1891; fellow of the American College of Surgeons; served as first president of the Atlanta and Georgia Urological Society; past-president of the Fulton County Medical Society; for many years on the staff of St. Joseph's Hospital; died July 2, aged 86.

Cochran, Charles Edgar, St. Louis; American Medical College, St. Louis, 1903; died in the Park Lane Hospital April 25, aged 75, of cerebral hemorrhage.

Comroe, Julius Hiram Sr. ✦ York, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; an associate member of the American Medical Association; on the staff of the York Hospital; died in the Hospital of the University of Pennsylvania, Philadelphia, July 16, aged 73, of coronary occlusion.

Dewees, Jacob Highley, New York City; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the Medical Society of the State of New York; died in the Veterans Administration Hospital, Bath, April 5, aged 85, of lobar pneumonia.

Elmer, Florence Dudley Greaves, Portland, Ore.; University of California Medical School, San Francisco, 1934; died in the Good Samaritan Hospital July 10, aged 46, of pulmonary edema and rheumatic heart disease.

Ford, Walter Ari ✦ Houston, Texas; Bennett Medical College, Chicago, 1913; on the faculty of Baylor University College of Medicine; served during World Wars I and II; on the staff of the Jefferson Davis Hospital; died July 12, aged 68, of coronary occlusion.

Goldberg, Sidney, Chicago; University of Illinois College of Medicine, Chicago, 1952; following his internship at the Cook County Hospital, served a residency in pediatrics at the Louisville General Hospital and the Children's Hospital in Louisville, Ky.; died in the Albert Merritt Billings Hospital July 31, aged 29, of Hodgkin's disease.

Green, William L. Sr., Lexington, Ga.; Southern Medical College, Atlanta, 1887; died in Athens May 23, aged 91, of dissecting aneurysm of the aorta, arteriosclerosis, and diabetes mellitus.

Grinnell, Wendell B., Preston, Minn.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; died May 30, aged 82, of cerebral hemorrhage.

Hammel, Seth A. ✦ Topeka, Kan.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; veteran of the Spanish-American War; served during World War I; medical officer of the state selective service during World War II; formerly on the faculty of the Kansas Medical College, Medical Department of Washburn College; died July 28, aged 76.

Harrington, Richard ✦ Williamsville, N. Y.; Trinity Medical College, Toronto, Canada, 1901; an associate member of the American Medical Association; served on the staffs of Millard Fillmore, Edward J. Meyer Memorial, and Sisters of Charity hospitals in Buffalo; formerly director of Bank of Williamsville; died in Clarence July 5, aged 82, of coronary disease.

Henes, Edwin Jr. ✦ Milwaukee; Columbia University College of Physicians and Surgeons, New York City, 1910; died July 25, aged 70, of arteriosclerosis.

Hibbard, Burt ✦ Lima, Ohio; University of Buffalo School of Medicine, 1900; at one time vice-president of the Northern Tri-State Medical Association; formerly an officer in the regular Army; served during World War I; at one time county coroner; died in the Veterans Administration Hospital in Marion, Ind., July 18, aged 78, of bronchial pneumonia.

Hollinshead, Theodore Highbee ✦ Louisville, Ky.; Hahnemann Medical College and Hospital of Philadelphia, 1898; an associate member of the American Medical Association; died May 29, aged 95, of pulmonary edema.

Horton, Logan Warren, New Orleans; Howard University College of Medicine, Washington, D. C., 1927; died in the Veterans Administration Hospital, Tuskegee, Ala., May 5, aged 57, of cancer of the stomach.

Iseri, Kawor, Los Angeles; Cooper Medical College, San Francisco, 1912; died July 23, aged 76, of cerebral thrombosis.

Jackson, Ransome Otha, Savannah, N. Y.; Rush Medical College, Chicago, 1928; health officer for the village and town of Savannah; from 1943 to 1954 also health officer of the town of Tyre, Seneca County; chief of staff of Lyons (N. Y.) Hospital; on the staffs of the Auburn Memorial and Mercy hospitals in Auburn; died June 12, aged 59, of coronary thrombosis.

James, Frederick Weiss, Norfolk, Va.; Leonard Medical School, Raleigh, N. C., 1906; died May 25, aged 74, of myocardial infarction.

Johnson, John Birger Albert ✦ Lowell, Mass.; Tufts College Medical School, Boston, 1908; served during World War I; at one time on the school board; died in the Shaw Hospital July 6, aged 76, of a cerebral vascular accident.

Johnston, Lawrence Walton ✦ Terrell, Texas; Baylor University College of Medicine, Dallas, 1938; formerly city health officer; member of the American Academy of General Practice; councilor of the 14th medical district of Texas, of which he was formerly secretary-treasurer; past-president and secretary of the Kaufman County Medical Society; interned at the Shreveport (La.) Charity Hospital; on the staffs of the Holton-Johnston Hospital and Terrell State Hospital; died in Falls Church, Va., May 15, aged 45, of coronary occlusion.

Kaley, Clifford Matthew ✦ Caldwell, Idaho; Northwestern University Medical School, Chicago, 1904; on the staff of the Caldwell Memorial Hospital, where he died May 25, aged 77, of cancer.

Keating, Charles Albert ✦ Paterson, N. J.; Jefferson Medical College of Philadelphia, 1902; served during World War I; died in the Paterson General Hospital July 17, aged 80, of pulmonary embolism.

Leake, Norman Augustus ✦ Torrance, Calif.; Medical Department of the University of California, San Francisco, 1912; an associate member of the American Medical Association; served during World War I; draft board medical examiner during World War II; on the staff of the Jared Sidney Torrance Memorial Hospital; died in Long Beach July 6, aged 78, of cerebral arteriosclerosis.

Lester, David Howard Russell ✦ Schenectady, N. Y.; Albany (N. Y.) Medical College, 1929; interned at the Ellis Hospital, where he was on the courtesy staff; formerly a resident in surgery at the Bellevue Hospital in New York City; on the courtesy staff of St. Clare's Hospital; died June 4, aged 50, in an airplane accident.

McGrath, Maurice James ✦ Oswego, N. Y.; Albany (N. Y.) Medical College, 1911; past-president of the Oswego Academy of Medicine; from 1940 to 1950 assistant health officer of Oswego; on the staff of the Ellis Hospital in Schenectady; an emeritus member of the staff of the Oswego Hospital, where he died May 28, aged 72, of heart disease.

FOREIGN LETTERS

BELGIUM

Acute Digestive Hemorrhages.—At a meeting of the Belgian Surgical Association in May, Moyson and de Scoville stated that in hemorrhages from the upper gastrointestinal tract peptic ulcers (chiefly duodenal) accounted for 70%, esophageal varices and gastritis for 10 to 20%, gastric carcinoma for 4%, hiatus hernias and other esophageal disorders for 10%, and an indeterminate group for the rest. Diagnostic methods need to be improved. Ulcers have a definite antecedent history in 75% of the patients. The gastric juice shows achlorhydria when there is a bleeding ulcer. Emergency radiological examination is useful, not dangerous, and can reveal the coexistence of such lesions as a peptic ulcer and esophageal varices, an ulcer and hiatus hernia, or hiatus hernia and diverticulum. If hepatic cirrhosis is suspected, a transparietal splenoportogram should be made. Prior radiographic examination, if it is negative, may make it impossible to interpret the films because some barium may be left in the digestive tract. A film showing hypertension of the portal system gives no information as to the source of the hemorrhage.

If the patient has an ulcer and esophageal varices, the problem is not resolved, although the ulcer is more frequently the source of the hemorrhage. In such patients the installation of a balloon tube gives the differential diagnosis, because either the hemorrhage stops or blood may be aspirated from the stomach. Esophagoscopy is dangerous. The bromsulphalein test gives information on the liver function but tells nothing about the source of the hemorrhage. It is important to determine the age of an ulcer because a recent ulcer still has normal arterial walls while an older lesion is accompanied by endarteritis. Multiple ulcers can cause massive hemorrhages. They usually follow an aggressive emotional outburst, which liberates corticotropin and causes hypersecretion with an increase in hydrochloric acid and pepsin. Esophageal varices bleed either because of thinning of the covering epithelium, which bursts abruptly, or peptic erosions resulting from regurgitation of gastric secretion and weakening of the esophageal epithelium by stasis anoxia.

Ulcers should be treated by discontinuous gastric aspiration, intragastric injections of thrombin, antacids, and blood transfusion. Transfusions have reduced the number of patients requiring operation and increased the number who can withstand surgical intervention. All patients over 50 with an ulcer of more than six months duration should be operated on immediately, and all patients with ulcer, regardless of their age, who have recurrence of hemorrhage within 48 hours or who continue to bleed during their hospitalization should be operated on. This also holds for patients with hemorrhagic gastritis. In patients with hemorrhage from esophageal varices, a Sengstaken-Blakemore tube should be passed and the patient rapidly and abundantly transfused. Splenoportography performed after shock has been controlled will establish whether the block is intrahepatic or extrahepatic.

If the patient has cirrhosis and hemorrhage is not controlled within 24 hours, transesophageal ligation of the varices, which is always effective, or simple ligation of the splenic artery, which is often effective, is required. In the case of extrahepatic block after the hemorrhage is temporarily controlled, splenectomy and splenorenal anastomosis or esophagogastrectomy may be performed. The latter is the only rational treatment in a patient who has already had a splenectomy or who has an associated esophageal peptic ulcer and varices. In cirrhotic patients ligation of the varices should be accompanied by portacaval anastomosis or arterialization of the portal blood. When exploratory operations are performed the portal pressure should be measured by means of a nylon catheter inserted into an epiploic vein. This benign procedure eliminates the possibility of portal hypertension, or, if this exists, of substituting direct ligation of the splenic artery for a blind gastrectomy that is without effect.

Determining Blood Alcohol.—At a meeting of the Belgian Legal Medicine Society in April, Professor Labarre and Mrs. Hans reported that blood alcohol levels may be determined by chemical, physical, or physicochemical methods. Factors to be considered are the ratio between alcohol ingested and eliminated, per hour and per kilogram of body weight; the distribution of the toxic agent in the various organs of the body; variations due to sex; and individual characteristics. To be valid, the analysis must be made under certain prescribed conditions. Whole blood must be used. The optimal time for obtaining the blood sample is 90 minutes after the last ingestion of alcohol. Professor Labarre believes the lowest blood alcohol level that may be said to contribute to causing an automobile accident is 0.12%. The amount of liquor that must be consumed for this rate to be reached depends on the weight of the consumer, whether the alcohol is consumed on an empty stomach, the condition of the subject's liver and kidneys, whether he has glycosuria, his tolerance to alcohol, and such substances that may have been ingested simultaneously as antihistamines and barbiturates.

Laws on Alcohol Consumption.—The National Committee Against Alcoholism has published a pamphlet: "Reflections on the Law in Relation to Alcohol Consumption." The present law prohibiting the sale of alcohol in quantities less than two liters and the dispensing of alcoholic beverages in public places, although still in effect, is not strictly observed. Present statistics on the consumption of beer and spirits prove that this legislation prevents the massive consumption of distilled beverages in public. The brochure insists that the prohibition on consuming and dispensing spiritous liquors in all public places be maintained. The National Committee is affiliated with most health and youth organizations and subscribes to the categorical pronouncements of the Royal Academies of Medicine, the Belgian Neurological Society, the Psychiatric Society, the National League of Public Morality, and the National Council of Belgian Women. The present laws on the consumption of alcohol are susceptible to improvements, but to weaken them would be to expose the population to serious dangers.

Radiological Hazards.—Dr. Bacq, in an address to the Belgian Society of Radiology, said that geneticists admit the possibility of a genetic hazard if the basal level of radioactivity of the earth be raised through the intensive use of atomic energy. All possible sources of ionizing radiation should be rigidly controlled. In particular, radiologists ought to: (1) check the output of their apparatus and make sure they use machines that give satisfactory information with the minimum dosage of x-rays, even if such machines are more expensive; (2) take steps to avoid irradiation of the gonads during examinations of the digestive tract, bladder, and colon, at least in persons of procreating age; and (3) use physiological radioprotectors of the cysteine or cystine type to eliminate direct and indirect effects, especially on the bone marrow and adrenals.

Health of Miners.—The government has enacted a new safety measure for the benefit of mine workers. All persons applying for this work must have microscopic examination of their stools for hookworm ova. The examination will be carried out during the 40 days preceding the date these persons are to start working, and they can have access to the underground works only if the results of their examination are negative. The examination will be performed twice, once between the 30th and 40th days, and again between the 90th and 100th days after the first examination. The examinations may be performed only by physicians appointed by the Ministry of Public Health. It is the employers' responsibility to see that this program is carried out and kept up to date.

The items in these letters are contributed by regular correspondents in the various foreign countries.

CHILE

Diabetic Survey.—Writing in the January issue of the *Revista médica de Chile*, Prof. D. Urrutia and his co-workers review their experience with 1,396 diabetic patients. The age when the disease was discovered was between 41 and 60 years in 65%; in only 7% was the disease discovered before the age of 30; and in 9% it was discovered after 60. In 14% the diagnosis was made only through a blood sugar determination performed during a regular health examination. Only 44% of the patients consulted a physician in the first year of their disease. Severe alcoholism was found in only 5%, which corresponds to the incidence of alcoholism in the general population. The diabetes began as a consequence of acute pancreatitis in only six patients. Body weight was normal at the beginning of treatment in 46%; obesity was present in 37%; and 17% were underweight. Only 29 had hypertension. In 40% the only treatment required was dietetic; 35% required an average of 40 units of insulin a day; 20% required 20 to 30 units daily; and 5% required more than 50 units per day. Severe hypoglycemic reactions occurred in only 24 patients. In 82% of the patients the course of the disease was benign, and in the rest it was severe because of complications or the intensity of the metabolic process. Acidosis and coma were present in 43 patients and were responsible for the death of 5. Vulvar pruritus was present in 37%, balanitis in 0.86%, pyorrhea in 11%, and furunculosis in 2.3%. Coronary arteriosclerosis was present in 20 patients, cerebral vascular accidents in 13, intermittent claudication in 22, gangrene in 10, polyneuritis in 34, and albuminuria in 25. Typical diabetic retinitis was seen in 152 of 422 patients examined with the ophthalmoscope. Sexual impotence was present in only four patients. Diabetes and pulmonary tuberculosis were associated in 7%. Pregnancy, present in 13 patients, was found to aggravate the symptoms of diabetes only moderately. The authors concluded that, in those patients in whom the disease started before the age of 40, the percentage of severe cases was greater than in the elder group. If the onset is rapid the prognosis is worse than if it is slow or asymptomatic. Men more frequently had severe forms than women, and the disease was more severe in patients who were underweight at the first consultation than in those in whom the weight was normal.

Viral Hepatitis.—Prof. R. Armas Cruz and his co-workers, in the *Revista médica de Chile* for February, report a series of 275 patients with viral hepatitis. Of these 62.2% were between 15 and 24 years of age. The highest incidence occurred in the summer. In 16.3% of the patients there was a history of blood transfusions or intravenous injection. The onset was sudden in 35%. Abdominal distress was the symptom most frequently present (44%) followed by such gastrointestinal disturbances as nausea, vomiting, diarrhea, or constipation in 36%. Myalgias and arthralgias were present in 26%. In 15% the initial symptom was jaundice without other symptoms. Most of the patients were admitted to the hospital a few days after the onset of their disease. When the disease was full-blown the main symptoms were abdominal distress (48%), asthenia (40%), and anorexia (40%). Fever was present in only 7%. The main physical sign was hepatomegaly with or without tenderness (68%). Splenomegaly was present in 13% and always associated with hepatomegaly. It was generally of a moderate degree and painless. Bilirubinemia was present in all but five patients who had the anicteric form of viral hepatitis. Blood cholesterol values were under 200 mg. per 100 cc. in 64% of the patients. Alkaline phosphatase levels exceeded 10 Bodansky units in only 13.4%. Of the flocculation tests the thymol turbidity was the most sensitive. In about half of the patients the strength of the flocculation tests decreased with the clinical subsidence of the disease and in the rest the tests remained positive up to six months after the clinical cure. In two patients they remained positive in spite of a negative liver biopsy. The main point of interest in the erythrocyte count was the presence of macrocytosis in 70% of the patients. The albumin-globulin ratio was inverted in 88%. Prothrombinemia was studied in only 99 patients, and in 49 it was below normal. It is difficult to say when hepatitis is cured, because no laboratory test gives this information and liver biopsy is not practical as a routine test.

Rabies Control.—Dr. Benjamin Blood, of the Pan-American Sanitary Bureau, as a result of a survey, stated that rabies is a problem in all Latin American countries except Uruguay. The Chilean government is cooperating with the bureau in its antirabies campaign. The vaccination of dogs must be supplemented by the capture of stray dogs. The absence of the sylvatic type of rabies in Chile makes the control of this disease much easier. The collaboration of the public is essential to the success of the campaign.

ENGLAND

Physique of School Children.—In a symposium in the *British Medical Journal* of June 25 it is stated that to obtain standards for somatotypy of children by physical anthopometry at the age of 11, measurements of 371 boys and 421 girls were made as an additional part of the routine medical examination in the city of Oxford schools during the period of January, 1953, to March, 1954. After discovery of significant relationships between physique and final honors among Oxford undergraduates, it was decided to compare the physique of the children with their marks in the entrance examination. The less muscular children are more often successful in passing the examination. The children's physiques were classified according to Sheldon and Tucker's somatotype method, with two important differences. First, since it was impossible to photograph the children, the estimates were based on physical measurements alone, whereas Sheldon uses mainly photoscopic methods. Second, since photographic standards for children have not yet been published, it seemed dangerous to adopt Sheldon's terminology; therefore, the components were renamed. The first component, endomorphy, was called fat (F); the second, mesomorphy, indicating bone and muscle development, was termed muscularity (M); and linearity (L) was substituted for the third component, ectomorphy. The ponderal index (height over the cube root of weight) was used as the basis for rating linearity.

The "11-plus" entrance examination consisted in 1953 of three papers—an intelligence test, an English test, and an arithmetic test—to which the Peel test of practical ability was added in 1954. Complete results were not available for the children who scored less than 70 in the intelligence test and for those absent from one or more of the written examinations. Although the former were automatically excluded by their low marks from taking any further examinations, their physique distribution is analyzed in the intelligence test section of the boys' part, since all of the very low scorers were boys. Results were analyzed in terms of those scoring above and below the mean for each subject. Of the girls' results, the most outstanding feature was that the less muscular sectors (in particular, LF) consistently, in all the tests, contained a greater proportion of girls scoring above the mean than the rest. The muscular-linear girls (LM and ML) varied in performance, while the muscular-fat ones (MF and FM) always had a lower percentage of high scores than the whole sample. The less muscular girls gained the largest number of grammar and technical school places, whereas the fat muscular girls received significantly few places. In all these tests stocky and tubby girls in sectors FM and MF did poorly as compared with the others. Many lean girls (LM) did well in the intelligence and English tests, but few did well in the arithmetic and practical ability tests. The slightly more muscular and less linear girls of sector ML, on the other hand, performed well at arithmetic and in practical ability, but did poorly in English and the intelligence tests. The boys' results were not as highly significant as were the girls'. There was, however, a consistent trend throughout all the results. The fattest boys (FM) were the most successful of the larger samples, and the muscular ones with secondary fat dominance were the least successful.

Experiments in Nursing.—There will be no reveille at dawn for the 64 patients who are to occupy two experimental wards at Larkfield Hospital, Greenock Royal Infirmary. Like patients elsewhere, those at Larkfield are normally called after 6 a. m. Hospital administrators have always said that the washing of patients must be completed by the night staff before they go

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off duty at about 8 a. m. In the experimental wards washing will be left to the day nurses who will be responsible also for bed-making. In return, nurses on night duty will take more part in the evening care of patients. In the new wards the main objective will be to provide more personal care by nursing patients in small groups. The wards are in a block, specially built to test new ideas in design and construction. A team of experts studying the problem included an architect, a physician, a nurse, a field-work organizer, a historian, and a statistician. They have been assisted by time-study engineers and others. A two-story building, the block has a 32-bed unit on each floor, one for men, the other for women. Each ward has centrally placed ancillary rooms, with 16 beds grouped on either side. This will cut the amount of walking done by average nurses while on duty between two and two and a half miles a day. Two experienced nurses will be in charge of the new wards. They will be given what clerical help they need so that they can devote maximum time to nursing care and teaching. They will control nursing teams of three, each with a trained nurse in charge and each caring for 16 patients. Each pair of teams will be helped by three relief nurses.

Maternal and Child Welfare.—The 42nd conference of the National Association for Maternal and Child Welfare was held at Church House, Westminster, in June. Sir Allen Daley said that at the time of the first conference in 1906, infant and maternal mortality were both five times greater than they are today. The Minister of Health said that for the first time in the history of this country the number of deaths from diphtheria was represented by a single digit (9), and the number of cases reported was 182. During the year the Minister of Health had tried to bring home to local authorities his concern at the bad effect on children's health, especially mental health, that followed the break-up of family life. It must be recognized that a team of people are involved in staving off these effects, and there can not be a thoroughly efficient service unless all parts of it work well and happily together.

Naval Hero.—Surgeon Lieut. C. E. Rhodes of the Royal Naval Volunteer Reserve lost his life on June 16 at the age of 27 in circumstances of great gallantry. He was serving on H. M. S. Maidstone, a submarine depot ship lying in Portland Harbor, when an explosion occurred in H. M. Submarine Sidon, which was alongside the Maidstone. He immediately boarded the submarine and without hesitation went below to help the injured. He succeeded in rescuing at least two of the crew, but when the order was given to abandon the sinking submarine, he did not return. Either he did not hear the order or he chose, true to his calling, to stay below tending the injured. The Sidon sank 20 minutes after the explosion. Dr. Rhodes had nearly completed his period of full-time national service. He was survived by a widow and a three-week-old daughter.

Joint Annual Meeting of British and Canadian Medical Associations.—The Joint Annual Meeting of the British Medical Association, the Canadian Medical Association, and the Ontario Medical Association, held in Toronto in June, attracted nearly 5,000 registrants. This is the fourth time that the British Medical Association has met in Canada. The last meeting in Toronto was in 1906. The new president, Dr. T. C. Routley, is not only president of the Canadian Medical Association but also of the British Medical Association. In his presidential address, Dr. Routley surveyed the medical and surgical scenes at the time of the three previous meetings of the two associations in Canada, the first being in 1897.

Chemotherapy of Bacterial Infections.—At the same meeting Professor Garrod of St. Bartholomew's Hospital, London, said that the various sulfonamides had similar antibacterial activities, whereas the antibiotics were much more selective in action, except that all the tetracyclines acted similarly. It is difficult for the clinician to keep up with all the new developments, particularly the new dosage forms. There are now 47 different dosage forms of penicillin. With regard to penicillin therapy it is better to have a persistent, even if low, blood level than a high, but short-lived, level. The indications for the use of antibiotics in different conditions can be divided into the absolute and the conditional. Use of penicillin is specific in scarlet fever, lobar pneumonia, gonorrhea, and syphilis; streptomycin is effective in tuberculosis and tularemia; chloramphenicol is effective in typhoid fever; and chloramphenicol and the tetracyclines are effective in typhus and other rickettsial infections. In the conditional group the particular strain or organism may not be sensitive, as with micrococci (staphylococci) in a hospital environment, or the condition may be due to a variety of organisms. The best course in such cases is to use the most likely antibiotic, pending a bacteriological investigation. Professor Garrod stressed the dangers of indiscriminate chemotherapy. The main abuses are the administration of agents to undiagnosed patients, to patients with nonsusceptible infections, to patients with trivial complaints such as colds, and to patients for prophylactic use. Chemoprophylaxis is, however, justifiable in major operations on the chest, abdomen, and brain, in complicated labor, and for prophylaxis in patients with rheumatic fever, but about 90% of the antibiotics prescribed are not justified. In a census of surgical patients more antibiotics were being given for prophylaxis than for treatment. Apart from the waste of money if improperly used, the antibiotics have dangerous side-effects in a small number of patients. These side-effects include allergic responses, aplastic anemia, and fulminating, resistant micrococcic enteritis. Chemoprophylaxis is not needed in aseptic operations, normal labor, or ordinary dental work. It is regrettable that in Britain the hospital doctor is tempted to use chemoprophylaxis as a protection against litigation should any untoward incident occur.

Dr. T. E. Ray of Toronto said that bacterial resistance to antibiotics varied with the locality and with the frequency of use of particular antibiotics. Inadequate dosage is also a cause of the emergence of resistant strains. This would not matter if the organisms became confined to one patient, but they become disseminated and infect other patients. In the Hospital for Sick Children, Toronto, nearly two-thirds of the pathogenic streptococci isolated in 1954 were penicillin-resistant, and one-third was resistant to streptomycin and the tetracyclines. The incidence of resistance to chloramphenicol and erythromycin was still low. Escherichia coli showed increasing resistance to streptomycin and the tetracyclines; Proteus and Pseudomonas aeruginosa were only occasionally sensitive, but many important pathogens were still fairly sensitive. These included the beta-hemolytic streptococci, the Diplococcus pneumoniae, the Neisseria meningitidis, the Neisseria gonorrhoeae, type B Hemophilus influenzae, and Treponema pallidum. The change is particularly evident in hospitals, but not so much in private practice, although resistant strains are appearing in the home. As the use of antibiotics becomes stabilized, the incidence of resistant strains in the hospitals does likewise. Treatment with antibiotics allows resistant mutant cells to survive treatment and fails to suppress any naturally resistant strains that may be present. Dissemination of these occurs via healthy or convalescent carriers. The problem may be solved by avoiding indiscriminate and prolonged use of antibiotics or by using them in rotation and isolating patients infected with highly resistant strains.

Dr. K. J. R. Wightman of Toronto said that in choosing an antibiotic the patient should be carefully examined before a decision is made as to whether one is needed and that if one is needed a careful choice should be made of the antibiotic. The severity of the infection, the accessibility and type of the lesion, the resistance mechanisms, both general and local, the previous reactions to antibiotics, and the bacteriological diagnosis influence the use and choice of antibiotics. The patient must have some natural resistance to the infection as well. Preference should be given to such bactericidal drugs as penicillin, streptomycin, and polymyxin. Absence of side-effects is also important, and the patient should be questioned on any previous reactions to antibiotics. Close cooperation between clinician and bacteriologist is necessary for rational and effective chemotherapy. Before deciding to use a particular drug, the sensitivity of the organism, absorption, diffusibility, mode of action, risk of toxic effects, ease and flexibility of administration, and even cost to the patient should all be considered. Antibiotics can be divided into three broad groups according to their bacterial spectrum. In the first group is penicillin, particularly active against gram-positive bacteria. Erythromycin is an alternative drug, useful particularly in penicillin-resistant micrococcic infections. Bacitracin should only be used in severe infections because of its

nephrotoxic effect; it is useful for topical application because of the low risk of sensitization. The second group includes streptomycin and dihydrostreptomycin, which are of limited use because of the early development of drug resistance and the risk of eighth nerve damage. Neomycin has a nephrotoxic effect and is only suitable for local use. Polymyxin is particularly effective against the Pseudomonas organisms. In the third group are the broad spectrum antibiotics. They are bacteriostatic, apt to produce gastrointestinal upsets, and dangerous because of the risk of superinfection in the alimentary tract with micrococci, coliform organisms, and yeasts. These complications are less likely with chloramphenicol.

Prof. J. W. Crofton of Edinburgh summarized the recent work done in Britain by the Medical Research Council groups with streptomycin and isoniazid. With effective chemotherapy tubercle bacilli can be eliminated from the sputum in 6 months without the emergence of drug resistance, and most patients can get back to work in 12 to 18 months, although in some such patients chemotherapy may have to be continued. Effective chemotherapy includes such combinations as 1 gm. of streptomycin daily, with 100 mg. of isoniazid twice daily, or 1 gm. of streptomycin daily, with 5 gm. of *p*-aminosalicylic acid four times daily, for patients under 30 years of age. For older patients an alternative scheme is 1 gm. of streptomycin twice weekly, with 100 mg. of isoniazid twice daily and 5 gm. of *p*-aminosalicylic acid twice or four times daily. Treatment with streptomycin, twice weekly with isoniazid and *p*-aminosalicylic acid in full daily doses is not without risk, as drug resistance may develop in some patients. In cases of drug resistance the drug to which the organism is still sensitive can be used with viomycin, oxytetracycline, or pyrazinamide. Chemotherapy should usually be continued for 9 to 12 months and, if cavities are present, for 9 to 12 months after the last positive sputum, or until the cavity appears to be closed. If chemotherapy is effective deaths are rare, unless treatment is delayed or postoperative death results. Of 107 patients treated over a period of three years, only two deaths occurred, although 31 of these patients had advanced disease. All the others became sputum negative, and 97% were able to perform some work.

Anesthesia.—At the same meeting Prof. Robert Macintosh of Oxford made a plea for simplicity in anesthesia. He thought that in many instances the anesthetic apparatus was unnecessarily complex, especially outside the larger hospitals, and he doubted whether the development of apparatus along "battleship" lines indicated progress. Nitrous oxide and cyclopropane although useful are not indispensable, and anesthesia can be carried out in an emergency without gas cylinders. Operations can now be performed with the patient under light general anesthesia to produce unconsciousness and with a muscle relaxant to abolish reflex responses. The latter are safe in competent hands provided a needle is strapped into a vein for intermittent injections. The one most useful piece of apparatus is a small bellows, with unidirectional valves in the supporting base to assist respiration. An oxygen cylinder is not necessary for such equipment; air, in fact, is safer, because oxygen might mask deficient pulmonary exchange. If an inhalation agent were needed, it could be run in through a tap at the base of the bellows, or a vaporizer could be attached for ether or trichloroethylene. For most operations air is adequate for oxygenation, and it is only in intrathoracic surgery that supplementary oxygen is needed, because in this procedure the lungs are seldom fully inflated. Sir Robert corrected two common errors: (1) that controlled respiration can be carried out by positive pressure without an endotracheal tube and (2) that closed-circuit anesthesia is not essential for the maintenance of controlled respiration.

Dr. C. Langton Hewer of St. Bartholomew's Hospital, London, deprecated the use of the Trendelenburg position in surgical operations because there is no need for it with the use of muscle relaxants. Its only value is in the treatment of shock. During operations the position compresses the lungs and reduces vital capacity; produces hypoxia and hypercapnia; tends to drown the patient with gastric juice, saliva, and mucus that collect in the nasopharynx; raises the blood pressure; and causes thrombosis in the legs and pulmonary embolism. The use of shoulder rests may also cause a palsy of the brachial plexus.

Dr. H. R. Griffiths of Montreal said that anesthetists should be trained as clinicians not as scientists but that scientists should advance the frontiers of anesthesia. He visualized the increased use of gases because they were more controllable in use and more readily eliminated than barbiturates, which he felt should only be used to induce sleep. Dr. Griffiths, who was the first to use curare in anesthesia, said that the safest and best muscle relaxant was succinylcholine, because it was so rapidly hydrolyzed. There is no future in hypothermia in anesthetic practice unless better drugs are discovered. For the moment it should be reserved for cardiac operations. The anesthetist of the future must be a physician, a pharmacologist, a physiologist, a toxicologist, a biochemist, and an electronic engineer.

Dr. L. Longtin of Montreal described a new technique of intubation for the prevention of contralateral infection during pulmonary operations. Two separate cuffed tubes connected to the same anesthetic machine deliver anesthetic gases to the lung. One is placed in the left bronchus to deliver gas to the left lung, and, by blowing up the cuff, the latter can be sealed off. The other is placed in the trachea, 2 cm. below the vocal cords, and delivers gas to the right lung only, as the left side becomes sealed off. Relaxation is secured with succinylcholine.

Discussing the techniques used for anesthetizing newborn infants, Dr. Cope of University College Hospital, London, said that he pushed muscle relaxants to the stage of complete curarization, using *d*-tubocurarine chloride in a dose of 0.3 mg. per kilogram of body weight. Oral intubation is performed with use of succinylcholine, and artificial ventilation is carried out, first with oxygen and then with a mixture of oxygen and nitrous oxide in equal volumes. Meperidine is sometimes used in a dose of 0.5 mg. per pound of body weight to produce sensory depression. As it is fatally easy to overhydrate babies with fluids used intravenously, these should be limited to 10 ml. in 24 hours.

Dr. Bromage of Chichester, England, described a new technique for assessing analgesic drugs. He said that the vital capacity was reduced by 60 to 80% during the 48 hours after upper abdominal operations, because of pain on inspiration, and that it was measurable by spirometry. Hence, the potency of an analgesic agent could be expressed by the degree to which it restored the vital capacity.

The use of chlorpromazine in anesthesia was commented on by Dr. D. A. Hopkin of London, who said that he had used it in 2,000 operations as an adjuvant to anesthesia. It exerts a selective depression on the subcortical centers and prepares the patient halfway for surgical anesthesia. Recovery can be prolonged with this drug as it intensifies the action of anesthetic agents and reduces muscle tone. Dr. Hopkin was impressed by the absence of operative shock when chlorpromazine was used. In fact, the signs of shock can be reversed in a patient with a perforated viscus, so that he is already prepared for operation. The speaker was also impressed by the good postoperative condition of patients who had been given chlorpromazine. Pulmonary complications are reduced, there is less vomiting and coughing, and patients are less restless and more cooperative. There is no convincing evidence that hypothermia is essential for chlorpromazine to exert its action. Many of its effects can be explained by its depressive action on what is known as the reticular activating system of the brain stem.

Simple Obesity.—At the same meeting Dr. E. R. Cullinan discussed the essential nature, effects, and treatment of simple obesity. Average weight-for-age tables of the life insurance companies are not satisfactory, and the Metropolitan Life Insurance Company has prepared tables with no distinction for age after 25 years, giving a range for three groups of differing build—slight, medium, and heavy. Simple obesity is the result of an excess of caloric intake over output. Constitution and inheritance may play a part. There is no abnormal metabolic pathway in the obese. Appetite is controlled by the hypothalamus. Psychic influences can affect the hypothalamic control. Weight reduction is best achieved by a high-fat, low-calory diet, although, in practice, restricting carbohydrates is usually sufficient. Exercise should be increased, but this should not be violent as it increases appetite. The amphetamine drugs have some value in the treatment of obesity.

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Delay in Treating Cancer.—At the same meeting Dr. Ralston Paterson of Manchester asked whether the early treatment of cancer was of proved value. The term "early" is often equated to the time interval from the first symptom, but this disregards the different rates of growth found in different tumors. Patients with growths of a limited extent, whatever the duration of symptoms, have a much better chance of being cured, although cure can never be guaranteed to anyone regardless of how early treatment is begun. Patients delay getting advice because of ignorance and fear. Ignorance is the cause of delay in cancers of the cervix, mouth, and skin, and fear is the main cause of delay in breast cancer. Fear causes more delay than ignorance because the layman still believes that cancer is incurable. In an investigation carried out at Manchester only one-third of the women questioned thought that cancer was curable. In a similar investigation in the United States, two-thirds of the women thought it was sometimes curable. Any public education scheme must dispel the fear of cancer and emphasize the fact that some cancers are curable.

War Pensions.—The "Report on War Pensioners," published by the Ministry of Pensions and National Insurance, shows that at the end of 1954 the number of disability pensions being paid to veterans of World War II was just over 367,000, compared with 375,528 a year earlier, and the number of such pensions being paid to veterans of World War I was 273,335, compared with 284,484 at the end of 1953. Treatment allowances were granted to 43,750 pensioners prevented from working because they were receiving approved treatment for service-connected disability. During the year, 93,000 such pensioners of World War II were examined by medical boards, and 70% retained their current pensions unaltered. A total of 4,087 pensions were awarded up to the end of 1954 for service in Korea (2,055), Malaya (1,162), Suez Canal Zone (819), and Kenya (51).

NEW ZEALAND

Antileptospiral Effect of Milk.—An epidemic of leptospirosis has occurred in New Zealand. Of the 262 patients involved, 200 were dairy farmers and their families, and the others were persons connected with the handling of livestock (freezing workers, transport workers, and veterinary surgeons). The absence of milk-borne epidemics in New Zealand and in the large number of countries where there is bovine leptospirosis made it desirable to initiate an investigation. Kirschner and his coworkers (*Proc. Univ. Otago M. School* **33**:4, 1955) showed that human, cow, and goat milk and human colostrum have a strong lytic action on Leptospira. There was no difference in the results obtained with the three types of Leptospira prevalent in New Zealand. The results have been confirmed by repeating the experiment with a virulent strain of Leptispira icterohaemorrhagiae, the destruction of the organism being shown by injection into guinea pigs. Certain physicochemical properties of the lytic agent suggested that it might be lysozym, but this possibility appears to be unlikely because egg white, saliva, or tears, known sources of lysozym, do not affect Leptospira. The factor also differs from lactenin, a substance in milk that kills streptococci, since it is not destroyed by glutathione, which destroys lactenin.

NORWAY

Sanitation of Summer Camps.—The Hygiene Institute of the University of Oslo has sent a memorandum to the Minister of Health urging him to centralize the measures necessary for keeping summer camps sanitary. Since 1940 the tourist traffic in Norway in the summer has risen by 250% whereas hotel accommodation has risen by only 15%. At the same time more and more tourists are avoiding the hotels and availing themselves of the overnight hospitality afforded by summer camps. About 35% of the Swedish visitors to Norway in July and August, 1954, were camping tourists. At one time the Norwegian Royal Automobile Club took a hand with the organization of summer camps, but some of this work has now been taken over by the Norwegian Automobile Association. In the summer of 1954, 4,400 tourists from abroad were questioned on leaving Norway about their experiences in the summer camps they had visited. Their comments were not flattering. In *Tidsskrift for den norske lægeforening* for May 15 Dr. Kaare Svendsen gives an account of his inspection of four summer camps run by landowners as private undertakings. The local sheriff has insisted that watchmen be employed and that a record be kept of all who stay a night or more. The local health authorities have framed rules for the sanitary control of these camps, and their owners are requested to provide sanitary drinking water, refuse disposal, and privies. Svendsen points out that although the camps he visited were among the best of their kind in Norway, they presented health risks to both the tourist and the local population. He recommends that the sanitary control of summer camps should not be left to the initiative of the local health authorities, whose activities vary from one district to another, but that a uniform system of control be directed by the Ministry of Health.

TURKEY

Pneumoperitoneum in Pulmonary Tuberculosis.—In *Tüberküloz* (vol. 9, no. 4) Dr. Tevfik Gökce and his co-workers report that in 1937 pneumoperitoneum was used in six of their patients but was then discontinued until 1949. Since then it was administered 1,760 times. Of the 1,000 patients who were followed up, 10 had moderate, 60 had marked, and 161 had progressive lesions in one lung; and 12 patients had moderate, 179 had marked, and 578 had progressive lesions in both lungs. The diaphragm ascended on the average of 4.5 cm. and most often on the right side. Pneumoperitoneum was performed in 28 patients simultaneously with phrenic écrasement, in 62 patients simultaneously with artificial pneumothorax, and in 104 patients after pneumothorax proved ineffective. In 34 patients pneumoperitoneum was performed with thoracoplasty and pneumothorax as a control for the lesions of the other side. In 120 patients the initial pneumoperitoneum was performed to stop hemorrhage. During the therapy 762 patients gained weight, 96 showed no change, and 142 lost weight. In 686 patients the sedimentation rate decreased; in 275 there was no change; and in 39 an increase in the sedimentation rate was observed. In 350 patients there was an increase in vital capacity; in 230 there was no change; and in 420 there was a decrease in vital capacity. It was observed that after pneumoperitoneum the vital capacity decreased from 5 to 10% but reverted to normal after the lesions and empyema disappeared. Pneumoperitoneum had beneficial effects on 120 patients with hemorrhage. Clinical, radiological, and laboratory examinations revealed the following effects of pneumoperitoneum on patients with lesions and cavities: 14% recovered; 58% were improved; in 26% the therapy was ineffective; and in 2% the condition was aggravated. During the first week of the therapy loss of appetite and loss of weight was observed in almost all patients, and brief, moderate, peritoneal reactions were observed in 5%. In 5 of the 18 patients in whom an inguinal hernia developed, an operation was performed and in 4 of these pneumoperitoneum was continued after the operation. In 19 of the 23 patients in whom an umbilical hernia developed, pneumoperitoneum was discontinued. When such a hernia can be controlled with bandaging, however, there is no contraindication to pneumoperitoneum. Ascites developed in 5% of the patients, but absorption occurred spontaneously. A few subcutaneous emphysemas were traced to faulty technique. Air embolus occurred in two patients, both of whom recovered. Mediastinal emphysema developed in one patient; he recovered. Acute appendicitis necessitating appendectomy developed in three patients. Cavitary souffles were observed in 1.5% of the patients. Lobar atelectasis was observed in two patients. Torsion of the omentum, obliterative tuberculous or hemorrhagic peritonitis, or tuberculous meningitis was not observed. The authors concluded that, as with artificial pneumothorax, pneumoperitoneum should be continued for three years.

MEDICAL LITERATURE ABSTRACTS

NEUROLOGY & PSYCHIATRY

Contribution to Therapy and Etiology of Multiple Sclerosis. H. Tschabitscher, T. Wanko, H. Schinko and B. Fust. Schweiz. med. Wchnschr. **85:**556-557 (June 4) 1955 (In German) [Basel, Switzerland].

Of 85 patients with multiple sclerosis of several months' to 34 years' duration, 50 were treated with isoniazid, 21 were treated with iproniazid, and 14 were subjected to a double-blind test with isoniazid and placebos. Isoniazid was given in daily doses of 500 mg., 400 mg. of which was given in four divided doses of 100 mg. orally and 100 mg. intravenously. The average duration of the treatment was 37 days, and the average total dose of the drug was 21 gm. Of the 50 patients treated with this drug, 28 had a chronic course, i. e., their disease did not show any tendency to improvement for at least three years before isoniazid therapy was instituted; in the other 22 patients the course of the disease was characterized by recurrent bouts. Of these 50 patients, 24 were improved in that the neurological symptoms were markedly alleviated, 17 were improved without substantial reduction of the neuropathological signs, 7 remained unchanged, and 2 became worse. Undesirable side-effects in the form of a transient urticarial rash occurred in two patients. Follow-up examination, three to six months after treatment was terminated, showed that the favorable effect of isoniazid continued in most of the patients with the chronic course, but in only one-third of those with recurrent bouts. Iproniazid was given in daily doses of 300 mg., 250 mg. of which was given in five divided doses of 50 mg. orally and an additional 50 mg. intravenously. The average duration of the treatment was 37 days and the average total dose 14 gm. Of the 21 patients treated with this drug, 12 obtained marked improvement, 3 were improved, 5 were unchanged, and one became worse. Several patients complained of dryness of the mouth, which as a rule subsided after four days. Three patients had mild edema in the lower extremities, but it disappeared spontaneously. Of the 14 patients who were subjected to a double-blind test, 8 were given isoniazid according to the same schedule as the 50 patients and 6 were given placebos. Of the eight patients who were given isoniazid, four were markedly improved, two were improved, and two remained unchanged. Of the six patients who were given placebos, one was improved, three were unchanged, and two became worse. The results obtained with the antituberculous drugs in the authors' patients with multiple sclerosis were superior to those obtained with any other treatment for multiple sclerosis. The cerebrospinal fluid of 30 patients was examined and found to contain Mycobacteria, the identity and significance of which are at present being investigated.

Tic Douloureux and Facial Pain: Therapeutic and Pathogenetic Considerations. E. Sperling and A. Stender. Deutsche Ztschr. Nervenh. **173:**161-183 (No. 2) 1955 (In German) [Berlin, Germany].

The authors review observations on 524 patients with pains in the region of the trigeminal nerve. They found that in typical tic douloureux the operation of Frazier or gangliolysis will generally produce complete freedom from pain. After gangliolysis no impairment of the sensory perception remains. This method represents a superior surgical method, provided its favorable results are permanent. Neuralgias in the first branch of the trigeminal nerve must be carefully analyzed with regard to the character of the pain. Operations on the gasserian ganglion are indicated if the pain occurs in the form of true paroxysms. In most patients, however, the pain in the region of the forehead and eye is of a different character, that is, it is a burning pain. It may appear alone or in the form of an atypical involvement in an otherwise typical tic douloureux in the second and third branches. In such patients, operations on the gasserian ganglion may be followed by residual anesthesia dolorosa. Blockage of the gasserian ganglion by means of alcohol should be rejected in patients with atypical pain in the first branch. In the presence of neuralgias of the first branch, operations in the posterior cranial fossa (Dandy, Sjöquist) produce more favorable results than do operations on the gasserian ganglion. In the typical forms of tic douloureux, hydantoin preparations, such as diphenyl hydantoin, should always be tried first, because these preparations usually produce immediate improvement and bridge the period until there is spontaneous recovery or until an operation can be performed. Diffuse atypical pains in the region of the trigeminal nerve contraindicate operations on the gasserian ganglion. In these patients the pain is caused by the sympathetic nerves, and the tracts that conduct this pain cannot be reached by operations on the somatic nervous system. In most patients these diffuse atypical pains extended to the occiput and the neck. The application of ultrasonic therapy to the cervical spine was found to be effective in many of these patients, provided no contraindications existed to this treatment. In the severe forms of sympathetic facial pains, such as in anesthesia dolorosa, artificial hibernation has proved helpful. The authors believe that vasomotor disturbances, possibly of the gasserian ganglion, may explain the pathogenesis of true trigeminal neuralgia.

Serpasil as Sedative in Psychiatry. K. H. Fremming and I. Perregaard. Ugesk. læger **117:**599-603 (May 12) 1955 (In Danish) [Copenhagen, Denmark].

The sedative effect of Serpasil was tested in a heterogenic group of 98 patients with the common characteristics of psychomotor unrest, restlessness, tension, and aggressiveness; 83 were schizophrenics. No difference was seen on parenteral and on peroral administration. To avoid the suggestive effect of a new remedy 37 patients were given Serpasil in periods alternating with placebos. The Serpasil dosage applied in most cases is between 2 and 4 mg. daily or, for old patients, between 0.5 and 1.5 mg. daily. In 61 cases the effect was good or tolerably good, in 37, doubtful or absent. In all cases the treatment was followed by fall in blood pressure, bradycardia, and lowered body temperature. When the systolic blood pressure fell below 80 mm. Hg Serpasil dosage was reduced or temporarily suspended, as also when the pulse rate was less than 46 per minute. Serpasil was substituted for electroshock treatment in 33 schizophrenic patients who had received regular electroshock treatment for a shorter or longer period of years. Patients with recent manias responded poorly, but the results were often good in patients with chronic schizophrenic psychoses. The best results were in distressed patients with moderate agitation. Caution is urged in the treatment of elderly patients and of patients with cardiac disease. There were no dangerous side-effects during the Serpasil treatment. In five cases there was stuffy nose and in six cases a Parkinson-like syndrome.

The Effect of Chlorpromazine ("Largactil") on Glucose Tolerance. F. B. E. Charatan and N. G. Bartlett. J. Ment. Sc. **101:** 351-353 (April) 1955 [London, England].

The use of chlorpromazine is now firmly established in psychiatry. A hyperglycemic effect in man has been reported and might be of importance if, for example, in schizophrenia, chlorpromazine were combined with insulin coma treatment. An investigation was carried out to study the effect of chlorpromazine

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The place of publication of the periodicals appears in brackets preceding each abstract.

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on glucose tolerance in 11 schizophrenic patients about to be treated with chlorpromazine. The patients were taking the ordinary hospital diet. A control glucose tolerance curve was carried out in the fasting recumbent subject after the ingestion of 50 gm. of glucose in a single dose. The fasting blood sugar, and the blood sugar at one-half, one, one and one-half, two, and two and one-half hours after the ingestion of glucose was estimated by the method of Folin and Wu on capillary blood. The test was repeated two or three days later with 50 mg. of chlorpromazine in 20 ml. of isotonic sodium chloride solution given intravenously immediately after the ingestion of glucose by the patient. It was found that the intravenous administration of chlorpromazine produced a significant delay in the expected fall in the blood sugar level after the ingestion of 50 gm. of glucose by mouth. This effect is considered to be due to a depressant effect of chlorpromazine on liver function or to increased secretion of glucocorticoids from stimulation of the adrenal cortex.

Is the Diagnostic Study of the Cerebrospinal Fluid Approaching a Crisis? V. Kafka. Deutsche Ztschr. Nervenh. **173:**103-110 (No. 2) 1955 (In German) [Berlin, Germany].

Some investigators have advanced the idea that since all proteins in the cerebrospinal fluid originate from the blood, the examination of the cerebrospinal fluid is only a test of the permeability of the meninges. Other arguments were added to question the validity of the diagnostic examination of the cerebrospinal fluid, but the author shows that rather than approaching a crisis, the study of the cerebrospinal fluid has been advanced, particularly by electrophoretic studies. He shows that, contrary to the opinions of some, electrophoresis cannot replace either chemical fractionation of the proteins of the cerebrospinal fluid nor the colloidal tests, and he urges that in the future all three of these methods should be used. This will not only bring closer the solution of the cardinal question as to where the proteins originate and what their function is but will find new diagnostic pictures. More detailed analysis, rather than the cursory methods now prevailing, will have to be used, however, to obtain more information about diagnostic problems and about the physiological and pathological aspects of the central nervous system.

Idiopathic Paralysis of the Diaphragm. G. Wense. Wien. klin. Wchnschr. **67:**417-418 (June 10) 1955 (In German) [Vienna, Austria].

An attempt was made to determine the cause of idiopathic unilateral paralysis of the diaphragm of three to four years' duration in 14 men between the ages of 47 and 71 years. Eight patients had paralysis on the left side and six on the right side. Some indications for the cause of the paralysis were observed in eight patients. One had a moderate-sized goiter extending substernally on the paralyzed side, one had been operated on for a similar type of goiter, one had a definite diaphragmatic pleuritis with a slight pleural effusion, one had a bronchial carcinoma at a considerable distance from the phrenic nerve, but microscopic examination revealed that the nerve was surrounded by chronic inflammatory infiltration and there was edematous swelling. The history of four patients revealed that they had had pneumonia on the paralyzed side and fibrous changes and thickened pleura were present as remainders of the previous inflammatory process. It is possible that in these four patients the phrenic nerve had become imbedded in the fibrous tissue and had lost its function. In the remaining six patients no indications for the cause of the paralysis of the phrenic nerve were found.

PEDIATRICS

Infantile Spastic Hemiplegia. M. A. Perlstein and P. N. Hood. Am. J. Phys. Med. **34:**391-407 (June) 1955 [Baltimore].

This report is concerned with a study of 334 patients with infantile spastic hemiplegia observed by the senior author during the past 10 years. Approximately 30% were private patients; 25% were seen at the Children's Neurology Clinic of the Cook County Hospital, Chicago; and the remaining 45% were from itinerant clinics throughout the midwest. Hemiplegia of the right side predominated over that of the left side in a ratio of 5:4. The right-sided and left-sided hemiplegias were distributed randomly between the congenital and postnatally acquired, those in males and females, and those with or without seizures. There was no significant difference in the intelligence or in the age of acquiring speech; the only other significant difference between those with involvement of the right side and those of the left was the even greater proportion of right-sided hemiplegia (2:1) in the congenital cases with birth weights of 8 lb. 3,628.7 gm.) and above. Spastic hemiplegia occurred more often in males than in females (4:3); however, sex was not related to other variables in this series, including birth weight. Negroes did not differ from whites, with the exception of their greater representation in the postnatally acquired and in the seizure groups. These differences were thought to be the result of socioeconomic factors rather than racial factors. Postnatally acquired forms accounted for about a third of the present series. The time of onset of hemiplegia showed no relationship to race, sex, side of involvement, or intelligence; however, an earlier age of walking and talking was noted in the patients in whom onset of cerebral palsy predated the acquisition of these skills, as compared with those with congenital hemiplegia. The incidence of seizures in this series was higher than that reported for all types of brain injury for mixed spastic groups and for most other series of spastic hemiplegia. Seizures were significantly more prevalent in those with the acquired forms and in the mentally defective patients; moreover, patients with seizures showed a significantly lower mean I. Q. score. Seizures were also associated with delayed onset of walking and talking but were not related to birth weight. Patients with spastic hemiplegia were approximately 20 I. Q. points retarded in comparison with normal children. Although the mean I. Q. scores did not differ significantly, there was a significantly greater number of mental defectives below than above the age of 6. The mentally defective group walked and talked later than did the educable group. Those of I. Q. between 90 and 110 percentile differed only slightly from normal children in walking and talking. Infants with spastic hemiplegia were 0.7 lb. (317.5 gm.) lighter than normal infants, the mean birth weight being 6.4 lb. (2,903 gm.). The proportion of premature infants and abnormally heavy birth weights was significantly greater in infants with spastic hemiplegia than in normal infants. There was a relationship between the age of walking and the age of the onset of the spastic hemiplegia in the acquired cases; other variables were not related to the age of onset in acquired hemiplegia.

Congenital Pneumonia: A Clinical Summary. A. J. Schaffer, M. Markowitz and A. Perlman. Maryland M. J. **4:**327-333 (June) 1955 [Baltimore].

Congenital pneumonia may be acquired days or weeks before delivery or it may have its inception during some stage of labor. Autopsies were performed on 76 infants at the Maryland Women's Hospital. These were either stillborn infants or those who died within the first three days of life. Pulmonary inflammation was found in 27 (35%); in 7 it was considered to have constituted a contributory cause of death; in 6 others it was the sole discoverable cause of death. The following conclusions were drawn from a careful study of the 13 severe cases in the Women's Hospital plus 15 comparable cases from the Johns Hopkins Hospital. Ten examples were culled from the 28 for this study of clinical characteristics. The rest were eliminated because they were stillborn births or because other lesions were found at autopsy that might have confused the symptomatic picture. Six of the 10 were full-term infants, and 4 were premature. All the full-term infants were sick at birth. Three showed characteristic asphyxia livida, two had asphyxia pallida, and the sixth breathed promptly but was grayish and dusky in color. Breathing time in the others was delayed 2.5 to 10 minutes; crying was delayed or never occurred. The respiration was abnormal after spontaneous breathing was established. Physical signs varied. In most, dulness to percussion could be elicited and either rhonchi or fine crackling rales could be heard. Fever occurred in all the mature infants. Neurological complications were present in four of the six. These consisted either of persistence of flaccidity or of the development of hypertonicity and rigidity of all extremities and back. The heart failed in two, as

evidenced by cardiac enlargement, poor heart sounds, and enlargement of the liver. In the premature infants who died of pneumonia, the clinical picture was much less sharply defined. They were all tiny (1 to 2½ lb. [453.59 to 1,134 gm.]), and they all became deeply cyanotic shortly after birth. Roentgenoscopy shows a fairly characteristic distribution of shadows. Intrauterine pneumonia must be differentiated from a number of morbid conditions that commonly affect the newborn infant. This task is rendered doubly difficult by the fact, demonstrable by postmortem examination, that pneumonia often complicates many of these same conditions. The authors briefly discuss the differentiation of hyaline membrane disease, atelectasis, and pneumothorax. Congenital pneumonia is not necessarily fatal. Vigorous antibiotic therapy of mothers whose membranes had ruptured prematurely will probably, although not surely, prevent a certain number of cases. Antibiotic therapy of the infant must be begun at the first suspicion that pneumonia might be present, and must be intensive. Both the pediatrician and the obstetrician must develop a greater awareness of this condition.

Anemia in Premature Infants. R. Clément. Presse méd. **63:**935 (June 18) 1955 (In French) [Paris, France].

The cause of the anemia seen in premature babies is a marked deficiency in hematopoietic activity during the neonatal period. Premature infants begin life with a greater volume of blood than babies born at term: 108 ml. per kilogram, dropping to 73 ml. per kilogram toward the seventh week of life. The volume of red blood cells falls from an estimated 46 ml. per kilogram at birth to 16 ml. by the seventh week. The number of reticulocytes falls extremely low during the first week of life and remains so for the next five to six weeks. During this period, the fall in red blood cells and hemoglobin level is considerable: 1.1 to 1.3% daily in the case of the former and 1.2 to 1.43% daily in the case of the latter. Spontaneous improvement, heralded by reticulocytosis, begins after the five-to-seven-week period. During the first three or four months of life the body of a premature infant has more iron than is necessary for hemoglobin synthesis, so iron therapy is not indicated at that time. It is of value later on. Transfusion therapy has proved its merit in the treatment of anemia of prematurity, but it should be discontinued after hematopoiesis picks up, because it might interfere with the process of spontaneous correction.

Variations in Secondary Antibody Response to Specific Antigens. M. Siegel. J. Pediat. **46:**631-641 (June) 1955 [St. Louis].

The data described were obtained among patients in an institution for the feeble-minded. Since the patients remained at the institution for many years, it was possible to observe them for prolonged periods and to employ as controls uninoculated individuals living under the same environmental conditions. Three types of antibody response to reinoculation were observed, depending on the antigen used. An accelerated and very marked increase in circulating antibodies commonly associated with a booster dose was seen after the use of tetanus toxoid and is characteristic of the response to bacterial toxins or toxoids. An accelerated but somewhat less marked secondary reaction was observed after the use of typhoid vaccine and is said to be typical of antibody formation following particulate antigens like bacteria, Rickettsia organisms, and viruses. In the case of pneumococcic polysaccharides, no increase in antibodies could be detected after reinoculation until many years after the primary stimulus, when the circulating antibody content was very low or nonexistent. The degree and duration of the secondary reaction also varied with the host. Individual differences were detectable with each antigen used. The individual's secondary reaction pattern to a specific antigen appeared to be reproducible by the use of a single dose only; however, there seemed to be little relationship between his responsiveness to the different types of antigen, that is, to tetanus toxoid and typhoid vaccine. The antibody content in the blood stream was lower among individuals with mongoloid features. The relation of these results to hormonal deficiencies reported in the mongoloid is conjectural at present. Electrophoretic analysis of pooled serum revealed comparable levels of gamma globulin in the mongoloid and normal individuals tested. The foregoing differences in response to reinoculation are not only of scientific interest but also of practical importance in the prevention or modification of clinical infection by means of active immunization. They suggest that different cellular processes might be involved in the formation of various types of antibodies.

Measles Encephalitis: I. Prophylactic Effect of Gamma Globulin. M. Greenberg, O. Pellitteri and D. T. Eisenstein. J. Pediat. **46:**642-647 (June) 1955 [St. Louis].

The authors tried to determine whether gamma globulin is of value in preventing the encephalitic complications of measles. One hundred sixty-five cases of measles encephalitis reported in New York City from the beginning of 1949 to July 1, 1954, were investigated epidemiologically. This number occurred among a total of 115,847 cases of measles, that is, there was one case of encephalitis for each 702 cases of measles. It was somewhat higher in females (1:611) than in males (1:817). The incidence of the complication increased with the increase in age of the patients with measles. It was one and one-half times as high in children 5 to 9 years of age and three times as high in those 10 to 14 years of age as in those under 5 years of age. The case fatality rate was 15%. It was twice as high in females as in males and twice as high in children under 5 years of age as in those 5 to 9 years of age. There were no deaths in older children. Sequelae occurred in about 9% of the cases, divided equally between boys and girls. They occurred about six times more often in those 5 to 14 years of age than in those under 5 years. There were none in children 15 years of age or older. All but one of the cases of encephalitis occurred in children who had not received prophylactic doses of gamma globulin prior to onset of measles, although there were distributed during the period of the study about 300,000 doses of gamma globulin for children under 5 years of age and, during the first four years of the study, about 85,000 doses for those 5 years of age or older. The authors feel that encephalitis is a rare complication of measles modified by gamma globulin.

Measles Encephalitis: II. Treatment with Gamma Globulin. M. Greenberg, E. A. Appelbaum, O. Pellitteri and D. T. Eisenstein. J. Pediat. **46:**648-653 (June) 1955 [St. Louis].

Theoretically, it is improbable that a specific antiserum will be effective in treatment unless given early in the course of the disease, when the causative organism or its toxin is still circulating in the blood. Once the virus has become attached to the cell it cannot be neutralized by antibody. In measles, the median day of onset of the complicating encephalitis occurs about six days after the beginning of the rash. By then the upper respiratory discharges contain no virus and the antibody titer of the serum is fairly high. It is difficult to see how the use of gamma globulin could affect the course of the complications or determine their outcome. Of 159 patients with measles encephalitis under the age of 15 years, 51 were treated with gamma globulin and 108 were not. About 25% of the children died or developed permanent sequelae, and the percentage was the same in the two groups. No significant differences in results between the treated and the untreated were found when comparisons were made by age groups or by amount of treatment or by severity. The authors conclude that gamma globulin has no value in the treatment of measles encephalitis.

Study of Illness in a Group of Cleveland Families: VIII. Relation of Tonsillectomy to Incidence of Common Respiratory Diseases in Children. L. P. McCorkle, R. G. Hodges, G. F. Badger and others. New England J. Med. **252:**1066-1069 (June 23) 1955 [Boston].

The question of whether an excessively large number of common respiratory infections, chiefly common colds, in a child constitutes an indication for tonsillectomy continues to receive a variety of answers. This study is based on observations made of a group of Cleveland families during the period 1948 to 1952. Approximately 230 children were under observation for varying lengths of time. Daily records of the health status of each person were kept by the mothers. The families were visited weekly by field workers, and at the time of illness the patient was examined by a staff physician, who evaluated the illness and obtained throat cultures and other specimens as indicated.

The mothers' records, together with observations by the field workers and physicians, provided the data for this study. Two sorts of data are presented. In the first place, the occurrence of the common respiratory diseases among all children of the family population 3 years of age and older is considered separately for those whose tonsils had been removed and for those whose tonsils were intact; no child under 3 years of age had had a tonsillectomy. Secondly, the occurrence of these illnesses among 26 children who had a tonsillectomy while under study is shown, both for the period of observation before and for the period after operation. It was found that attack rates for the common respiratory diseases among children who had had a tonsillectomy were very similar to those among children of comparable age who had not had this operation. There was no indication of a difference in type of common respiratory disease between the two groups of children. The 26 children who had a tonsillectomy while under observation were found to have had a higher than expected rate of common respiratory disease both before and after operation. Tonsillectomy did not materially alter this incidence.

UROLOGY

Treatment of Acute Traumatic Renal Insufficiency. C. E. Catlow. J. Urol. **73:**913-920 (June) 1955 [Baltimore].

The clinical management of acute renal insufficiency has improved owing to research carried on during the Korean war on patients with lower nephron nephrosis. The author correlates some of the facts learned while observing the treatment of 50 patients in the Korean war plus a limited experience gained in private practice. He feels that the term acute tubular nephrosis as suggested by Moon more accurately describes the pathological picture; however, the term lower nephron nephrosis has entered medical terminology and will probably remain. The syndrome of acute renal insufficiency may be induced by the following causes: prolonged shock from any cause, trauma, hemoglobinemia, bacterial or chemical toxins, sensitization reactions, radiation, and anoxemia. Whatever the cause, the pathological picture and clinical course are essentially the same. Pathologically there is cloudy swelling and necrosis of the nephron, with the most marked changes in the tubular system. There is precipitation of myohemoglobin, hemoglobin, and other proteins within the tubules, probably producing a mechanical blockage to the flow of urine. The clinical course consists of the oliguric phase lasting about 10 days and the diuretic phase that extends over several weeks. During the former there are profound metabolic changes: elevation of nonprotein nitrogen, acidosis, hyperphosphatemia and reciprocal hypocalcemia, accumulation of toxic metabolites, and, most important, hyperkalemia. The mechanism of hyperkalemia deserves emphasis because of its dire effects and the special efforts required to combat it. Sources of the increased potassium in the blood are: tissue breakdown from extensive wounds, infections, and hematomas; catabolic mechanisms incident to diminished caloric intake; and acidosis with the resulting ionic shift of potassium from the cells to the extracellular fluid. The diuretic phase is characterized by electrolyte depletion and, therefore, continued vigilance is necessary. The nonprotein nitrogen remains high for a long time. These unusual changes are no doubt due to faulty absorptive mechanisms in the regenerating epithelium. Death, when it does not occur from associated wounds or overwhelming infections, may result from pulmonary edema due to overhydration or cardiac arrest secondary to hyperkalemia. The care of these patients is difficult, tedious, and trying, but, once the critical oliguric phase has been overcome, the kidney will probably be restored to normal. This regenerative capacity justifies all efforts. The regulation of the fluid intake deserves special attention during treatment, and it is especially important not to overwhelm the patient with fluid that cannot be excreted. Other important factors are: regulation of acid-base balance; maintenance of caloric intake; small frequent blood transfusions to control anemia and restore depleted proteins; antibiotics and vitamins; dialysis, by means of the artificial kidney in severe cases; and the control of hyperkalemia. Emphasis is placed upon the use of electrolyte antagonists to potassium and particularly the use of adequate amounts of sodium. The author suggests that an osmotic diuretic might be added to Red Cross blood in order to maintain glomerular filtration during the first critical hours of shock after injury; this might possibly prevent the mechanical blockage of tubules by precipitated proteins.

Ureterosigmoidostomy: Collective Review of Results in 2,897 Reported Cases. B. G. Clarke and W. F. Leadbetter. J. Urol. **73:**999-1008 (June) 1955 [Baltimore].

The results obtained with four different types of ureterosigmoidostomies are evaluated. Better methods of anesthesia, blood and fluid replacement, intestinal intubation, and antibiotic therapy have permitted more extensive operations and have reduced the need for staged procedures. A clearer understanding has developed of disturbances in electrolyte balance that may occur after diversion of urine into the bowel. The authors present a collective review of 2,897 patients in whom the following four types of operations were performed: (1) a muscularizing operation, (2) direct anastomosis, (3) submucosal tunnel operation, and (4) a combination of submucosal tunnel with direct ureterointestinal anastomosis. Operative mortality varied widely but ureterosigmoidostomy appeared to be quite safe when not combined with pelvic cancer surgery. Pyelonephritis was less common after the combined operation than after other types. Hydronephrosis was less common after the combined operation. Air reflux from the intestine into the ureter was seen by x-ray in 17.5% of the patients in whom a direct anastomosis had been made. It was not observed after tunnel or combined types of operation. Hyperchloremic acidosis occurred in about a third of cases irrespective of type of operation. Analysis of a small group of patients operated on by the combined technique indicated that this complication did not occur in the presence of a postoperatively normal upper urinary tract.

Optimum Time for Orchiopexy in Cryptorchidism. F. Hinman Jr. Fertil. & Steril. **6:**206-214 (May-June) 1955 [New York].

Biopsy specimens from undescended testes were compared histologically with normal testes from children of similar ages. The authors found that the undescended testis may be just one manifestation of congenital malformation or of endocrine dyscrasia. Many testes are constitutionally so abnormal that they will not function no matter what sort of hormonal or operative therapy is applied. If the testes are potentially normal, surgical placement must be performed before they are irreversibly damaged by the high intra-abdominal temperature. Physical abnormalities in the testis or primary endocrine abnormalities prevent descent of the testis. The decision for or against treatment of cryptorchism should be made between the ages of 3 to 6 years, because after 6 years, irreversible damage has usually occurred. Giving methyltestosterone linguets will show what effect puberty will have, without the need for waiting while irreversible changes take place. In unilateral cryptorchism, nondescent usually means obstruction, so hormones will seldom be effective. In this condition orchiopexy is the only effective treatment, since the patient's own pituitary hormones have proved sufficient to bring down the testis on the opposite side. Operation is also necessary if the retained testis is associated with a clinically demonstrable hernia. If hormonal stimulation fails, surgery is indicated. Hormones have made orchiopexy easier by enlarging the testis and its adjacent structures. The decision between orchiopexy and orchiectomy will usually be made at the operating table, by consideration of the appearance of the testis and the technical difficulties in bringing it completely within the scrotum. There is little chance for spermatogenesis unless the testis is reasonably normal in development, has not been too severely damaged by staying overlong in the abdomen, and can be brought completely within the scrotum. Tumor of the testis is 20 times more frequent in patients with cryptorchism, so there is an additional argument for either bringing the testis to a site where it can be followed by palpation, or removing it if it appears too maldeveloped to produce an effective number of sperm. Since the retained testis may be irreversibly damaged well before puberty, hormonal stimulation should be tried before the age of 6 years. If it fails, orchiopexy should

be performed at once. Many failures can be explained by congenitally defective testes or general endocrine abnormality and are not necessarily the result of the operation.

Diverticula of the Female Urethra: Review, New Procedure for Treatment, Report of Five Cases. E. A. Edwards and R. A. Beebe. Obst. & Gynec. **5**:729-738 (June) 1955 [New York].

The mode of origin of diverticula of the female urethra is still uncertain. These diverticula may be congenital or acquired. Conservative or radical treatment can be used, but most investigators prefer the radical methods. All agree that there is likelihood of urethrovaginal fistulas if the diverticular sac is not wholly excised. The authors' surgical technique, which has not been previously reported, consists of separating the vaginal mucosa and fascia overlying the diverticulum and floor of the urethra. The urethra is incised from the external urethral meatus to the site of the opening of the diverticulum into the urethra (provided this is within the distal two-thirds of the urethra). The diverticulum is then excised. The urethra is repaired over a catheter placed in the urinary bladder through the proximal third of the urethra, which has not been incised. There is no interference with urinary continence by this method. Five patients have been treated successfully in this manner and followed for from 3 to 13 years. There have been no failures.

OTOLARYNGOLOGY

Current Medication in Otitis Externa. G. E. Tremble. A. M. A. Arch. Otolaryng. **61**:629-637 (June) 1955 [Chicago].

Cultures from patients with diffuse external otitis showed the Pseudomonas aeruginosa to be the chief causative agent. In relatively few ears were gram-positive bacteria such as Micrococcus (Staphylococcus) aureus and albus or nonhemolytic Streptococcus cultured. Although some of the newer antibiotics are effective against many gram-negative and most of the gram-positive organisms, Ps. aeruginosa seems to be the exception. In view of the fact that over 65% of cases of external otitis are due to this organism alone or in combination with some form of Streptococcus, one single drug would not appear to be sufficient. Of all the antibiotics, oxytetracycline orally would seem the most effective to get rid of the gram-negative rods, and sulfadiazine or triple sulfonamides, to take care of the gram-positive Streptococcus organisms. Experience has shown that many patients with external otitis refractory to other forms of therapy responded to 4-amino-2-methyl benzene sulfonamide hydrochloride (Sulfamylon, also known as Marfanil or Mesudin); Sulfamylon in 1% to 4% solutions seemed equally effective, although the weaker solutions required a longer time. Polymyxin B has recently proved effective in otitis externa. It destroys Ps. aeruginosa and is also bactericidal to some gram-positive organisms, including Micrococcus and Streptococcus. It also kills certain fungi and can be given intramuscularly as well as by local application. It is now thought that less than 15% of cases of external otitis are caused by fungus infection. Metacresylacetate is fungicidal and has a local analgesic effect. Dibromosalicylaldehyde solution is effective against gram-negative organisms and fungi. Coparaffinate (Iso-Par) ointment is an effective fungicide and bactericide. Recently acetic acid has been added to many of the drops used for external and middle ear infections. Aluminum acetate with acetic acid (Burrow's solution) is an old-fashioned remedy for otitis externa that has stood the test of time. Another agent present in many of the ear drops currently advertised is urea. Among the ear drops that contain urea are Otosmosan (a liquid containing 20.5% sulfathiazole carbamide incorporated in dehydrated glycerol), Glycerite of Hydrogen Peroxide, and Otomide (a solution containing carbamide, sulfanilamide, glycerin, and chlorobutanol). Ethyleneglycolmonophenylether (Phenoxetol, 2.2%) has been used successfully in otitis externa associated with Ps. aeruginosa infection. A commercial preparation, Neo-Cortef, cortisone acetate with neomycin sulfate sterile suspension, has proved successful in many refractory cases of otitis externa; usually the inflammation, exudation, and itching tend to subside within a few days, but occasionally patients have to use the drug for months. In the treatment of patients who have otitis externa, unless the underlying cause, such as allergic, physical, chemical, endocrine, psychosomatic, and emotional factors, is corrected, there are likely to be recurrent cases of this condition.

Vocal Palsies in Children. F. Cavanagh. J. Laryng. & Otol. **69**:399-418 (June) 1955 [London, England].

The author has observed a number of babies suffering from so-called congenital laryngeal stridor and has performed 182 laryngoscopies on 107 children. Vocal palsies were found in 37, congenital laryngeal stridor in 24, no lesions in 11, subglottic edema (allergic and chronic inflammatory) in 11, papillomas in 6, vocal nodules in 6, aggressive false cords in 5, scalds and corrosive poisoning in 3, congenital web in 2, foreign body in the larynx in one, and nevus in one. Most of the vocal palsies were unilateral but 10 were bilateral. A surprising fact is that in the unilateral group 23 were on the right and 4 on the left. Some cords were completely paralyzed and others only partially paralyzed. There was wide variation in the degree of improvement, as well as in the time required for any recovery. In three children who were recovering from unilateral paralysis, the author observed that during moderately quiet breathing the impaired cord showed no movement, though the normal one abducted regularly to a uniform degree. If deeper breathing was induced, the good cord abducted further and made three or four excursions before the weak cord moved once, and when the weak cord had made one abduction it would often lie again in the midposition while the normal cord abducted another three or four times. At one examination in a little girl, the good cord always gave three abductions before the weak one moved, and, in a small boy, the normal cord repeatedly abducted five times for each abduction of the recovering cord. In the third child the pattern varied: there were sometimes two, three, or four abductions on the healthy side for one of the affected cord. Several patients have been observed for five to seven years. The seriousness of the vocal palsies is shown by the fact that 11 of 37 children needed tracheotomy—and in all these the operation was necessary in the first half year of life. Five of the children who were subjected to tracheotomy died. A funnel deformity of the lower end of the sternum developed in 10 of the babies. In only 8 of the 37 patients was it possible to find a causal factor. The tomogram can be used to demonstrate vocal paralysis after the age of 5 years.

THERAPEUTICS

Clincial Studies on a Vasopressor Agent: Metaraminol (Aramine): I. Observations in Normotensive Subjects. M. H. Weil and W. W. Spink. Am. J. M. Sc. **229**:661-669 (June) 1955 [Philadelphia].

Although it is unlikely that any sympathomimetic agent will have all of the desirable attributes, available information suggested that metaraminol (Aramine) approximated the ideal agent more closely than did other more commonly used pressor agents. The authors observed normotensive volunteers, because it is difficult to interpret observations made during the state of shock in human subjects. Single subcutaneous, intramuscular, or intravenous injections of metaraminol were given on 51 occasions to 31 subjects. All of the volunteers were normotensive young men free of demonstrable cardiovascular disease. Before injection they were told to report all subjective effects that followed. Their blood pressures were measured while they were supine. After a period of rest, and following two control readings before administration of the drug, the blood pressure and pulse rate were measured at 1 to 5 minute intervals shortly after the injections and at 5 to 15 minute intervals if the drug caused a prolonged effect. It was found that metaraminol may be effectively given subcutaneously, intramuscularly, or intravenously without demonstrable injury to the tissues at the site of injection. A prompt and potent vasopressor response may be obtained with a single intravenous injection of 3 to 10 mg. of the drug. Subsequent maintenance of blood pressure may be secured by the intravenous infusion of 30 to 200 mg. of me-

taraminol per liter of fluid. When the blood pressure has been sustained, subsequent support may be afforded by single subcutaneous injections of the drug. A prolonged effect may be achieved by intermittent subcutaneous or intramuscular injections of metaraminol. The authors conclude that the drug is a potent pressor agent and is nontoxic.

Direct Arterial Study of the Blood Pressure Response to Cold of Normotensive Subjects and Patients with Essential Hypertension Before and During Treatment with Various Antihypertensive Drugs. J. H. Windesheim, G. M. Roth and E. A. Hines Jr. Circulation **11**:878-888 (June) 1955 [New York].

The cold pressor test was performed three times at 15 minute intervals on 65 volunteers with normal blood pressure and on 60 patients with essential hypertension. The study was repeated in some of the controls in one to five months and in all patients with hypertension in about three weeks. The arterial pressure was recorded directly from the radial artery. In this study, the cold pressor test proved a reliable index of vasomotor reactivity, both of persons with normal blood pressure and of patients with hypertension. Repetition of the test at short and long intervals yielded consistently constant responses of blood pressure for each person. The response did not seem to change with age, although only seven patients of more advanced age (between 41 and 62 years) were included in the control group. The time between immersion of the hand in ice water and the maximal blood pressure was between 50 and 60 seconds in most of the controls and patients with essential hypertension. Therefore, the indirect reading most likely to give the true maximal blood pressure should be made at this time. The response to the cold pressor test was considered abnormal if the increase in the diastolic pressure in response to cold was 15 mm. Hg or more and if the maximal diastolic pressure was 85 mm. Hg or more by the direct arterial method of blood pressure recording (90 mm. Hg or more if measured by the indirect method). Persons with normal basal blood pressure whose diastolic pressure rose more than 15 mm. Hg but whose maximal diastolic pressure was less than 85 mm. Hg by direct measurement were included in the group of normal reactors. With these criteria, 46 (70.8%) of the 65 controls were considered to be normal reactors and 19 (29.2%) normal hyperreactors. The 60 patients with essential hypertension were studied before treatment with various antihypertensive drugs was begun and while under treatment of the hypertension, in order to evaluate the effect of the various antihypertensive drugs on the cold pressor response. The response of their blood pressure to cold before treatment was uniformly greater than that of the controls except among those with the most severe hypertension. It is likely that the vessels of the latter could not constrict more under the added stimulus of cold, since they were already maximally constricted. The ganglionic blocking agents, hexamethonium and pentapyrrolidinium, markedly depressed the response to the cold pressor test, and this observation appeared to be clinically significant. Hydralazine hydrochloride combined with hexamethonium possibly aided in the depression of the pressor response to cold. Protoveratrine, reserpine, and hydralazine in various combinations had no effect on the cold pressor response. That the load placed on the heart by the activity during treatment was greater in the patients with the less severe hypertension than in those with severe hypertension is suggested by the fact that, in the patients with severe hypertension, who were treated with ganglionic blocking agents, basal blood pressure and the cold pressor response were reduced, and hence they had lower maximal pressure during activity than did the patients with milder hypertension, who were treated with the other drugs. Thus the ganglionic blocking agents would appear to have a clinical advantage over the other agents.

Undesirable Side-Effects of Dissolved Pyrazol Bodies in Treatment of Rheumatic Fever. W. Falk and E. Sekol. Wien. klin. Wchnschr. **67**:393-397 (June 3) 1955 (In German) [Vienna, Austria].

In 1953 and 1954, a hemorrhagic diathesis developed in seven children between the ages of 6 and 12 years with acute polyarthritis and rheumatic endocarditis, respectively, in the course of their treatment with Irgapyrine (a proprietary compound containing equal parts of phenylbutazone and aminopyrine), and with Butazolidin (a proprietary preparation of phenylbutazone). Four of the seven children had hematuria, and the three others had hemorrhages of the skin and mucosa. The general condition was poor in only one patient, who had a very low thrombocyte count, although the mechanism of coagulation was not disturbed otherwise. In an attempt to elucidate the side-effects, and particularly the thrombocyte-damaging effect, of the three antirheumatic drugs given to these patients, the effect of Irgapyrine, Butazolidin, and aminopyrine on the blood of rats was studied. Results showed that Irgapyrine, Butazolidin, and aminopyrine exert a mild anemizing effect in rats, but no influence on the leukocytes was noted. Butazolidin, and aminopyrine even more, caused a drop of thrombocytes in the peripheral blood of the rats. Although an undesirable side-effect of Butazolidin and aminopyrine in the sense of thrombopenia was observed in the authors' pediatric patients and in the animal experiments, this does not seem sufficient to explain the development of hemorrhagic diathesis. It is suggested that the hematuria, as well as the hemorrhages of the skin and of the mucosa, in the authors' patients were manifestations of vascular impairment, which most likely was of toxic-allergic type.

Clinical Study on Weight Reduction in Obesity. H. Sapoznik. Am. J. Digest. Dis. **22**:159-160 (June) 1955 [Fort Wayne, Ind.].

Six different formulas of reducing compounds were given a trial in obese patients in order to induce decreased food intake and permit weight reduction. All patients were asked to use 1,000 calorie diet containing approximately 100 gm. of carbohydrate, 20 gm. of fat, and 100 gm. of protein. Amphetamine (Benzedrine) or a proprietary preparation of *d*-amphetamine (Dexedrine), by themselves or in combination with thyroid hormone, produced not only loss of weight but also undesirable side-effects such as nausea, epigastric distress, nervousness, insomnia, dizziness, headaches, palpitations, and constipation. The best reducing combination was a proprietary preparation (Obolip), which contains only a small dose of *d*-amphetamine, a small dose of phenobarbital, lipotropic factors, vitamin B_{12}, and methylcellulose. With this compound mild side-effects, including insomnia, nausea, and epigastric distress, were noted in only 2 of 15 patients. An average weight loss of 3 lb. (1.3 kg.) per week in a six week course of treatment with this drug was obtained. The fact that drugs containing a central nervous system stimulant, such as the amphetamine derivatives alone or in combination with thyroid extracts, did not produce the desired results in weight reduction without undesirable side-effects is in contrast to the reasonably uniform and predictable manner in which the reducing agent containing lipotropic factors for the treatment of infiltration of the liver appeared to work. Thus, the claim of a metabolic approach to obesity made for Obolip was supported by clinical experience.

Tetracycline. R. L. McCorry and J. A. Weaver. Lancet **1**:1102-1105 (May 28) 1955 [London, England].

The structure and antimicrobial spectrum of tetracycline (Achromycin) are similar to those of chlortetracycline and oxytetracycline. All three substances have the same chemical nucleus. Other investigators have observed that tetracycline is as effective therapeutically as the other two preparations and may have certain advantages over these. The authors investigated the clinical usefulness of tetracycline in 87 patients. The sensitivity of pathogenic organisms, isolated from patients in the hospital, to tetracycline was also studied. Minimal inhibitory concentrations of tetracycline for 71 strains of common pathogens are listed. These common pathogens included among others Micrococcus (Staphylococcus) aureus, Streptococcus pneumoniae, Str. hemolyticus, Str. viridans, Escherichia coli, and Friedländer's bacillus. Tetracycline proved effective against both gram-positive and gram-negative organisms. Most of the 87 patients were treated for acute infections of the respiratory system. The clinical response was assessed on the duration of pyrexia, subjective improvement, and objective physical and radiological findings. In pneumococcic lobar pneumonia the results obtained were good and in every respect equal to those after the use of chlortetracycline and oxytetracycline. In acute

bronchopneumonia the results were variable and difficult to assess, owing to many other complicating disease processes being present; e. g., cardiac failure. Drug treatment was of necessity started before sputum results were available. Three patients in this group had on admission been started on penicillin therapy without response, and culture of the sputum showed the predominant organism to be Friedländer's bacillus in two of these cases and Hemophilus influenzae in the third. When the treatment was later changed to tetracycline the improvement was dramatic. Generally the results were comparable to those observed with the two analogues. In 10 of 39 patients with pneumonia the results were less than expected. There was a temporary improvement with lessening of the amount of sputum in six of the eight patients with bronchiectasis. The favorable outcome in most of the small number of patients with miscellaneous infections compares with results obtained with the two analogues. The side-effects resulting from tetracycline therapy were mostly gastrointestinal, and their incidence as regards diarrhea was somewhat less than with the two analogues, particularly as regards nausea. The fact that resistant organisms are less likely to develop with the tetracyclines than with penicillin has encouraged some workers to recommend the universal use of the tetracyclines in acute chest conditions. This advantage is somewhat offset by the quicker action and lesser side-effects of penicillin in the infections with sensitive organisms, and for that reason the authors believe that penicillin should still remain the drug of choice in the initial treatment of pneumonia and that tetracycline should be reserved for patients who do not respond to penicillin, or in whom the causal agent has been shown to be penicillin-resistant.

PATHOLOGY

Lung Biopsy in Diffuse Pulmonary Disease. P. A. Theodos, F. F. Allbritten and R. L. Breckenridge. Dis. Chest **27:**637-648 (June) 1955 [Chicago].

Lung biopsy under direct visualization through a small incision was performed with the aid of local anesthesia and with the lung kept expanded by positive pressure oxygen given through a snugly fitting face mask in 50 patients with diffuse pulmonary lesions. In 27 patients, a specific diagnosis was established by histological and bacteriological study of the biopsy specimen. In 26 of the 27 patients, the preoperative diagnosis was confirmed by biopsy. Lung biopsy is of greatest value in diffuse lesions such as those seen in pneumoconiosis, sarcoidosis, metastatic malignancy, and tuberculosis, where a specific pathological entity is present. In these conditions the diagnosis can be readily established, since the abnormal findings are sufficiently well-defined to permit accurate diagnosis. No specific pathological diagnosis was possible in 23 patients. Biopsy served only to rule out the presence of a definite disease entity in these patients. Appreciation of the high prevalence of nonspecific fibrosis and emphysema in clinical practice should make the use of lung biopsy more selective. The procedure was well tolerated by the authors' patients and produced minimal complications, except in one patient who died of cardiac failure secondary to pulmonary insufficiency three days postoperatively. In general lung biopsy affords a rapid, accurate method for diagnosis, determination of the medicolegal status, and determination of the prognosis of diffuse pulmonary lesions. The use of the procedure as a diagnostic aid shortens the period of hospitalization and lessens the cost.

Lipoid Pneumonia Due to Prolonged Ingestion of Mineral Oil. J. B. Meyers and R. L. Griffith. Dis. Chest **27:**677-684 (June) 1955 [Chicago].

Of 355 autopsies performed between 1949 and 1952, 7 (2%) revealed lipid pneumonia as a complicating or concomitant disease in men between the ages of 30 and 74 years who had some serious illness other than lipid pneumonia which was primarily responsible for their deaths. In three of these cases, however, lipid pneumonia was listed as the immediate cause of death, in one case lipid pneumonia was considered to be an important contributory cause of death, and, in the remaining three, lipid pneumonia was an incidental but definite finding. All of the patients had used mineral oil regularly as a laxative. One patient with a stricture of the esophagus caused by swallowing lye in early childhood also employed mineral oil to lubricate the bougies used to dilate his esophageal stricture. In one of the cases, microscopic examination of the lung revealed a granulomatous proliferative inflammatory process caused by the mineral oil; in a case of this type the term chronic pulmonary oleosis seems more appropriate than lipid pneumonia.

Analysis of Focalized Pulmonary Granulomas Due to Coccidioides Immitis. R. L. Alznauer, C. Rolle Jr. and W. F. Pierce. A. M. A. Arch. Path. **59:**641-655 (June) 1955 [Chicago].

The "coccidioidal pulmonary residual" is an all-inclusive term applied to the different types of focalized lesions remaining in the lung parenchyma, either temporarily or permanently, after the resolution of the acute pneumonitis due to the fungus Coccidioides immitis. These focalized lesions can be divided into three major groups: (1) the solid fibrocaseous granuloma, (2) the fibrocaseous granuloma with cavitation, and (3) the linear fibrotic scar. This paper is concerned with the first two types of focalized lesions, since the third represents the final stage in healing, and probably has no clinical significance. The authors observed 11 patients with fibrocaseous granulomas of the lung due to C. immitis. All were men, ranging in age from 21 to 47 years. Six patients probably had acquired their primary coccidioidal infection in southern California, one in the San Joaquin Valley, and four in Arizona. In four asymptomatic patients, solid lesions were discovered by routine roentgenograms of the chest. None of these had had a history of an acute pneumonitis suggestive of the primary infection with C. immitis. Despite thorough clinical investigation, the exact nature of these solitary pulmonary nodules could not be established with certainty, and hence they were surgically resected, three by lobectomy and one by wedge resection. Five of the seven patients with cavities had a history of an acute pneumonitis. Although the possibility of an acute coccidioidal pneumonitis was clinically suspected at the time, a definite diagnosis by means of positive sputum cultures had not been established. Subsequently these patients had sporadic episodes of cough, hemoptysis, low grade fever, and related symptoms, as well as radiological evidence of a persisting cavity for periods of 4 to 30 months. Although the sixth patient never had a history of an acute pneumonitis, subsequent cough and hemoptysis led to medical investigation, with discovery of the cavity by chest x-ray. The seventh patient never had a history of an acute pneumonitis and was asymptomatic at the time of discovery by routine chest x-ray. Wedge resection of the cavity was performed in all seven patients. All 11 patients were discharged from the hospital either to full duty or to civilian status. The coccidioidin skin test was positive in all 11 patients. Eight also had positive skin reactions to histoplasmin, tuberculin, or both. Coccidioidal complement-fixation tests were performed. The serologic titers were considered to be diagnostic of coccidioidal infection in six patients, equivocal in one, and negative in the remaining four. The five patients with either a negative or equivocal serologic test also had positive skin reactions to histoplasmin, tuberculin, or both. Under these conditions, the diagnosis can be made only by the demonstration of the causal organism. The coccidioidal pulmonary residual is not necessarily stabilized; if patent communication with an adjacent bronchus is established, a solid granuloma may become a cavitary lesion after the evacuation of its caseous contents. This occurred in one of the reported cases. Conversely, a cavitary lesion may be converted to a solid granuloma because of obstruction of its communicating bronchus followed by inspissation of its contents due to the reabsorption of fluid. Despite such occasional mechanical fluctuation in its structure, the coccidioidal pulmonary residual is a relatively bland and innocuous lesion.

A Clinico-Pathological Study of Diabetic Glomerulosclerosis. A. T. Lambie and A. Macfarlane. Quart. J. Med. **24:**125-142 (April) 1955 [London, England].

This study is based on 120 consecutive cases of diabetes mellitus, which came to postmortem examination in the years 1951 to 1954 in the pathological service of Edinburgh University. The typical glomerular lesion (Kimmelstiel-Wilson lesion) con-

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sists of a focal deposit of hyaline material in the center of a glomerular lobule. Fifty-five of the 120 patients (46%) showed evidence of diabetic glomerulosclerosis, it being slightly more common in women than in men. The 55 cases were graded according to the number of glomeruli involved. Twenty-three patients had grade 1 lesions, that is, less than 25% of the glomeruli were involved; 9 had grade 2 lesions (26 to 50% of glomeruli involved); 9 had grade 3 lesions (51 to 75%); and 14 had grade 4 lesions (over 75% of the glomeruli involved). Poor diabetic control seems to be a factor in the development of this lesion, since it was considerably more common in poorly controlled diabetes. The average duration of diabetes in patients with glomerulosclerosis was 11.7 years and in those without the lesion 7.3 years. The severity of glomerulosclerosis is also related to the duration of the diabetes. Glomerulosclerosis is found most often in patients in the seventh and eighth decades, but the majority of cases of diabetes, with or without renal lesions, also occur in these age groups. In most decades, however, the incidence of the lesion is approximately 50%. The incidence of glomerulosclerosis does not bear any relation to the severity of the diabetes. There were 11 patients with the fully developed clinical syndrome of albuminuria and nephrotic edema. There was no constant histological pattern in the renal glomeruli in these patients. Massive albuminuria appears to be related to the presence of exudative lesions in the glomeruli. Most patients with mild glomerulosclerosis do not show clinical evidence of its presence, and even seven cases of severe glomerulosclerosis were not clinically obvious. Young diabetic patients with glomerulosclerosis have clinical evidence of the lesion more commonly than do elderly diabetics.

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Newer Concepts of Experimental Obesity. M. B. Fertman. A. M. A. Arch. Int. Med. **95:**794-805 (June) 1955 [Chicago].

A distinction should be made between obesity, a severe, often irreversible disease, and simple overweight, reversible and based on a high ratio of caloric intake to activity or to rate of growth. Obesity takes many forms and is the end-result of various interacting factors, extrinsic and intrinsic. The extrinsic causes of obesity include excessive caloric intake, and perhaps nutritional deficiencies as well; relative inactivity; toxic effects; and possibly stress situations. The extrinsic factors may bring certain of the intrinsic causes of obesity into operation. The intrinsic causes include the constitutional, the diencephalohypothalamic, the endocrine metabolic, and the enzymatic. All of these may be interrelated and interactive. Anywhere along the pathways of the numerous intricate reactions of carbohydrate-fat metabolism, of fat mobilization, and of fat deposition, a disturbance might occur that conceivably could lead to obesity. There is now experimental evidence that in the form of obesity that follows infection or injury, the pancreas is involved. Although perhaps less conclusive, results indicate also that other endocrine glands, the adipose tissue, and enzyme systems play at least a partial role. That hyperphagia or inability to recognize satiety may lead to obesity is demonstrated by experiments with hypothalamic-induced lesions or stimulation. Again, metabolic factors may be concurrently involved.

RADIOLOGY

Radiotherapy in the Management of the Cancer Patient. G. H. Fletcher. Postgrad. Med. **17:**490-497 (June) 1955 [Minneapolis].

Physical science has developed a variety of means of delivering ionizing energy: low energy x-rays (45 kv.) used in skin cancers; deep roentgen therapy (200 to 250 kv.); million-volt machines (1 to 2 mev.); cobalt-60 teletherapy (3 mev. equivalent); ultrahard x-rays produced by betatron or linear accelerators; and many gamma ray (x-ray) or beta ray (electron) isotope emitters. This broad spectrum of ionizing tools has increased the range of attack on malignant growths. Radiation produces biological changes through the process of ionization. The radiocurability of certain types of cancers is made possible by the margin of radiosensitivity between tumor cells and normal supporting structures, but radiosensitivity and radiocurability are not identical terms. Tumors such as the lymphomas are very radiosensitive, but rarely radiocurable, because they either generalize quickly, or are a generalized disease to begin with. Keratinizing, squamous cell carcinomas, on the other hand, require very high doses of radiation that approach the limit of tolerance of the supporting structures. Indications for radiotherapy are by no means simple, because it may be a truly curative procedure, or only palliative; and it may be combined with surgery or used alone. If the cancer is radioresistant, as the neurogenic sarcomas and adenocarcinomas of the gastrointestinal tract are, there is no problem since operation is the sole method of treatment. If the tumor is extremely radiosensitive, and probably a generalized disease from the beginning, such as the lymphomas, radiation is undoubtedly the treatment of choice. When one is dealing with squamous cell carcinomas that are amenable to both radiation and operation, there are many determining factors in the selection of treatment. A patient may be in worse condition after an ill-advised course of radiotherapy than he would be in had he not been treated. Radiation necrosis superimposed on growing cancer is more painful than cancer alone. However tempting it is to the physician to do something for the hopeless patient, the greatest kindness is not always to use aggressive therapy.

ANESTHESIA

Chlorpromazine Hydrochloride in Intraocular Surgery. A. B. Nutt and H. L. J. Wilson. Brit. M. J. **1:**1457-1458 (June 18) 1955 [London, England].

Eighty patients between the ages of 18 and 80 years who underwent intraocular surgery were anesthetized as follows. One hour preoperatively 0.1 gm. of secobarbital (Seconal) was given by mouth and 100 mg. of meperidine (Pethidine, Demerol) hydrochloride intramuscularly; in some frail patients the secobarbital was omitted. Fifteen minutes before the start of the operation, an intravenous injection of a mixture of 50 mg. chlorpromazine (Largactil) hydrochloride and 100 mg. meperidine hydrochloride diluted to 20 cc. with sterile water was given slowly at the rate of about 1 cc. per minute until the patient fell asleep and could tolerate a lubricated artificial airway. The dose required varied from 20 to 45 mg. of chlorpromazine and 40 to 90 mg. of meperidine. A regional infiltration with procaine was given, coupled with a retrobulbar injection. The patient slept peacefully throughout the operation and the surgeon took as long as he wished without the fear of a restless patient. Of the 80 patients, 60 underwent cataract operations, and 20, operations for glaucoma and corneal grafting. There were no deaths or morbidities, and the patients' postoperative condition was excellent. Although the method was not used in extremely frail patients and those with severe cardiac disease, it was employed in nervous patients and in many with signs of arteriosclerotic cerebral degeneration in whom a purely local technique would have been dangerous. The main advantages of the method are: (1) no cooperation is required from the patient during the operation and for several hours afterwards; (2) it produces a low-tension eye, ideal for intraocular surgery; and (3) the recovery period is extremely quiet and uneventful.

Arterial Pressures in the Extremities of Normal and Hypertensive Persons. M. Riser, J. Planques and A. Couadau. Presse méd. **63:**987-989 (June 25) 1955 (In French) [Paris, France].

The authors determined normal arterial pressures for wrists, fingers, ankles, toes, and temporal arteries in various postures and found that in a normal man lying flat the temporal pressure is lower than that in any other peripheral artery, namely 40 mg. Hg. This difference increases in the sitting and standing positions because the pressures in the limbs increase and that in the temporal artery decreases to 35 mm. Hg. The rise in pressure in a hanging limb is generally accompanied by a lasting rise in the oscillometric index. In hypertensive persons the pressure does not rise everywhere in the extremities proportionally to the humeral hypertension. The temporal pressure and the retinal pressure (as measured by Bailliart's method) increases relative to its normal amount more than the pressure in the extremities does relative to its normal amount. This explains the cephalic affinity of the hemorrhage and edema of arterial hypertension.

QUERIES AND MINOR NOTES

PROGRESSIVE MUSCULAR DYSTROPHY

To the Editor:—*I would like information on the use of adenosine triphosphate in the treatment of progressive spinal muscular atrophy.* *M. J. Pond, M.D., Kirksville, Mo.*

Answer.—Some doubt exists in regard to the exact disease referred to. Progressive muscular atrophy is an intrinsic, degenerative disease of the motor system, the anterior horn cells, and sometimes the corticospinal tracts. Usually developing late in life, the disease does not show a hereditary tendency. No form of treatment is known that will change the progress of this disease, as the muscular atrophy is secondary to the nerve cell destruction, and regeneration of nervous tissue is not possible. A fatal termination is to be expected in two to eight years. On the other hand, progressive muscular dystrophy, to which the query probably refers, is a primary degenerative disease of the skeletal muscles rather than of the nervous system. There is a possibility of some regenerative activity in muscle, particularly in dystrophy from deficiencies in vitamin intake content or secondary to virus infection. Unfortunately, this is not the most common type of dystrophic disorder. The more usual type is a hereditary form of dystrophy occurring early in childhood. The muscles may show either pseudohypertrophy and thus appear larger than normal, or they may be smaller and thus become clinically atrophic. Although the final stage of muscular degeneration in the dystrophies is not dissimilar to the atrophy seen when a muscle is deprived of its nerve cell or cut off from its supporting influence, the earlier stages of muscular dystrophy are quite dissimilar to those found in progressive muscular atrophy. There is a preliminary enlargement of the muscle fiber and granular and fibrillary changes in the myofibrils, suggesting a primary defect in the muscle itself. As it is not uncommon in dystrophy to find muscle fibers small but otherwise normal in appearance, it has been assumed that the defect, in part, may be one of maturation of muscle fibers and their supporting tissue. In other words, the fault may be in the muscle nucleus, thus interfering with the normal production of myofibrils.

These and other histological observations have led to attempts at stimulation of muscle cells by chemical means, such as the use of adenosine triphosphate to compensate for defects either in the nucleus or in the muscle fiber itself. It is still to be proved, however, that adenosine triphosphate is the immediate source of energy in the contracting muscles. Indeed, there is some evidence that muscles can in fact do work without the decomposition of an equivalent amount of this drug. Added evidence against the value of adenosine triphosphate as a useful form of treatment is suggested by the failure of a continuous infusion into the brachial artery to show an effect on the amount or rate of blood debt repayment following rhythmic exercise of the forearm muscles. Progressive muscular dystrophy is sometimes confused with polymyositis, but the more rapid onset and the tendency to progress by remission and relapse in the latter disease should make a differential diagnosis possible. The pathological changes in muscles observed in polymyositis are different from those found in muscular dystrophy, so a muscle biopsy is a certain means of differentiation and should be obtained in every case. Those patients, moreover, who respond to treatment with corticotropin or wheat germ preparations are almost certainly examples of polymyositis. If adenosine triphosphate should also stimulate muscle response when used clinically, the possibility of polymyositis, instead of true progressive muscular dystrophy, must always be kept in mind. Adenosine triphosphate is primarily a vasodilator. It has been used in a large number of conditions, such as diabetic neuropathy, liver disease, rheumatic syndromes, heart failure, asthma, and allergy. Reports are not available that suggest the value of this drug in muscular dystrophy. Until further evidence is presented of a clinical nature, a high mineral diet, with yeast, is all that is indicated and even this may not affect the progressive course of muscular dystrophy.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

TAKING PICTURES IN OPERATING ROOMS

To the Editor:—*I would like to inquire about taking electronic flash pictures in hospital operating rooms. I am using a Heiland Strobonar V outfit, which is a condenser type of discharge working from an entirely sealed battery. The flash bulb has an enclosed filament sealed in glass and is used for thousands of flashes without changing. I cannot see any danger in using this apparatus in the operating room but would like your opinion to present it to the local operating room committee and to the local fire department. If you consider this apparatus hazardous, please give instructions regarding the use of photographic apparatus that is being used in many operating rooms at present.* *Daniel M. Kingsley, M.D., Alexandria, La.*

Answer.—Electronic photoflash lamps should not be employed in operating rooms of hospitals unless careful precautions for safety are observed before using them. In the "Recommended Safe Practices for Hospital Operating Rooms" of the American Fire Protection Association, Section 8-2-b points out that smoking, open flames, hot materials, photoflash or photoflood bulbs, cautery equipment, high frequency devices, and electronic equipment such as amplifiers, recorders, television cameras, x-ray machines, and certain sterilizing machines introduced into the area of combustible gas accumulations create an extreme hazard to patients and hospital personnel. Section 2-2-d of the same "recommended standards" reads "In anaesthetizing location the hazardous location is to be considered to extend 5 feet above the floor." It is above this 5 ft. level that operating room surgical lights are installed. Although these lights are "explosion proof" photoflood lights can be placed more than 5 ft. above the floor too, which is considered outside the hazardous location. But the photoflood lights are less dangerous than the connecting wires that energize them. Poor connections, such as the extension cords that are strung on the floor to electrify the photoflood lights, are more likely to create the hazardous condition. It is especially true when faulty connections in the plugs permit electric arcs. A surgeon is at the threshold of inconsistency and will jeopardize the safety of his operating room, which is probably equipped with modern safety appliances, by allowing a careless photographer to use sloppy extension cords. Photoflash lamps have connecting wires and electric arcs that might create a hazard. The only true safety measure that would offer adequate protection in the hazardous location is expensive and cumbersome. Place the camera and electronic flash unit within a strongly sealed box similar to that used for undersea photography and pressurize the box with two or three atmospheres of an inert gas such as helium. The inert gas under pressure will exclude the explosive gas in the box. A transparent panel for the lens of the camera, the lamp head of the flash unit, the controls for operation of the camera, and the flash unit from outside the box must be provided. Installing the electronic flash lamp assembly according to these precautionary measures will render the equipment less dangerous and can be used within the hazardous level.

On the other hand, if the electronic flash lamp, including the electrical equipment for control of the shutter, is held and operated well above the 5 ft. level then the flash lamp may be used. Such a location might be in the balcony of an operating room in a teaching hospital. The camera might be equipped with a telescopic lens.

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INTUSSUSCEPTION

TO THE EDITOR:—*Five years ago the oldest of five siblings, at the age of 8, had acute abdominal pain, and, on exploratory laparotomy, an intussusception was noted and reduced. Another boy was operated on, in January, 1955, for an exploratory laparotomy because of recurrent abdominal pain, with symptoms of low grade obstruction. An intussusception of the ileum into the ileum was noted and an intestine resection was done. The patient had had the symptoms for three years. At the time of the operation this boy was 8 years old. The younger brother who is age 7 has had similar symptoms for two years and was explored on Feb. 18, 1955. At that time several portions of the ileum were noted to be dilated and extremely thin walled. However, the amount of intestine that would have had to be resected was too extensive, and it was decided to put the patient on medical therapy. What is your advice as to the type of therapy involved? What is the chance of this third patient to develop a localization with intussusception? Should they be considered congenital or hereditary?*

M.D., Montana.

ANSWER.—The type of therapy for the younger brother whose intestine was not resected would depend on an understanding of the conditions discovered at the time of operation and could not be very well discussed by a person not familiar with the case. However, a continuation of medical therapy would seem wise. A recurrence rate of 2% has been observed in a series of some 700 children who were operated on for intussusception. The finding of an extremely thin-walled ileum in the present patient suggests that a recurrence of the condition is more likely than would be expected in the absence of such a condition. The occurrence of three cases of intussusception in the one family could result from some environmental factor, but this would seem to be unlikely. According to definition, a condition is considered to be hereditary if there is organic resemblance based on descent. Since no information is available regarding the occurence of intussusception in the parental generation, the condition cannot be said to be hereditary. A trait is said to be congenital if it is present at or before birth. The present patients apparently did not exhibit any evidence of their common tendency at birth but may have possessed some common characteristics at that time, which, in each case, led to the development of their common condition. A study of a consecutive series of families in each of which a malformed child was born has revealed that the parents of a child with a congenital malformation are more likely to give rise to another malformed child than would be expected by chance. In a consecutive series of families in which two or more malformed children were born, the defect in the second child was found to be the same as that in the first malformed sibling, in approximately one chance out of two. This is a high frequency when one considers the great variety of congenital defects to which man is heir.

TUBERCULOSIS OF KIDNEY

TO THE EDITOR:—*A patient suffers from tuberculosis of the kidney. One kidney was removed, and the patient is under treatment with dihydrostreptomycin and p-aminosalicylic acid, six tablets four times a day. The patient vomits often. Is there anything to prevent the patient from vomiting? Is it advisable to change from p-aminosalicylic acid to an isoniazid product?*

Ralph L. Icken, M.D., Astoria, N. Y.

ANSWER.—It seems clear that the patient is sensitive to the quantity of *p*-aminosalicylic acid being given. There are several ways this problem can be met. Try to correct the problem with as little disturbance as possible to the treatment of the patient. It is suggested that the sodium *p*-aminosalicylic acid be changed to calcium *p*-aminosalicylic acid and half dosage be given for a few days. Then if no ill effects result, to continue on to the full dosage. This will correct most problems of burning, nausea, and vomiting. If not, the treatment should be stopped for 10 days and then started again with small doses, 100 mg. a day, gradually increasing the amount until the patient can tolerate the full dosage. It is sometimes effective to use the effervescent salt instead of the simple salt, or effervescent salts may be given with the calcium salt if an effervescent product is not available. One of these methods should correct the condition. The potassium salt has been recommended by Molthan and his associates (*Am. Rev. Tuberc.* **71**:220, 1955). There is no special advantage in using the potassium salt, except to desensitize and to restrict sodium intake. Neither will it be necessary to use intravenous medication. In a recent report in the 14th Chemotherapy Conference of the Veterans Administration, the Army, and the Navy, Lattimore has shown that he obtains better results in genitourinary tuberculosis when all three drugs are used, than when only two are used. It would be good practice, therefore, to add isoniazid, 300 mg. a day, to the schedule already in use.

LUPINE BEANS

TO THE EDITOR:—*I have a 65-year-old woman patient with moderate diabetes whose fasting blood sugar level runs between 150 and 200 mg. per 100 cc. without insulin. Recently on a trip to Italy she ate lupine beans. A blood sugar level taken two months after her return was 90 mg. per 100 cc. It has never been close to this level in 10 years. What is the action of these beans?*

M.D., New York.

ANSWER.—There are nearly 7,000 species of legumes. They were mentioned 2,000 years B. C. Lupine beans resemble lima beans, of which the average composition, dried according to "Chemical Composition of American Food Materials" (Bulletin 28, U. S. Department of Agriculture, 1906) is water 10.4%, protein 18.1%, fat 1.5%, carbohydrate 65.9%, and ash 4.2%. The edible portion of fresh lima beans contains water 8.5%, protein 7.1%, fat 0.7%, carbohydrate 22.0%, and ash 1.7%, but as purchased refuse 55%, water 30.8%, protein 3.2%, fat 0.3%, total carbohydrate 9.9%, and ash 0.8%. Mrs. Julia F. Morton, vice-director of Morton Collectanea of the University of Miami, writes as follows: "The seeds of several species of Lupinus are still used as food by the poorer classes of the Mediterranean region after special measures are taken to remove toxic principles which apparently vary with species, locality and season. However, in modern literature, lupines are dealt with primarily as hazards to grazing animals, though certain strains are valued as forage." Lupines have been responsible for many losses in domestic animals, especially sheep, in Europe and America. Eighty species of lupines are recorded from the plains and mountains of America. Obviously it would be unjustifiable to attribute a fasting blood sugar value on a single day after a trip to Italy to what was eaten or done on the trip even though more data were available, such as a knowledge of the quantity and quality of the diet, the amount of exercise taken, and the weight of the patient before and after the trip. An Italian patient reports that lupine beans are often eaten with wine as pretzels are taken with beer. At first the beans are soaked for two days in cold water, and then they are boiled and kept for two weeks. The outer layer of the bean is removed with the fingers, and the bean is eaten. Most likely on the patient's trip to Italy the beans were substituted for a dessert that would have been richer in carbohydrates and of which she would probably have consumed more.

BILATERAL CHARCOT JOINTS

TO THE EDITOR:—*A man, aged 54, has bilateral "Charcot joints" of the hips. He was given 8 million units of penicillin in 1947, developing a severe allergy to same. In 1950 the right hip joint enlarged and was explored, removing about a quart of cartilaginous "mice." He was then given two years of continuous treatment with alternating courses of arsenic and bismuth. In 1954 the left joint began to show a similar degenerative process. Consultation resulted in a difference of opinion regarding further treatment. He is Wassermann-fast, and the spinal fluid is negative. 1. Does this patient need more antisyphilis therapy? 2. Does a prosthesis of the head of the femur usually give good results in this condition?*

M.D., Texas.

ANSWER.—The neuropathic arthropathy (Charcot joint) of tabes dorsalis is not beneficially influenced by any treatment, whether with metal chemotherapy or antibiotics. Nothing will be gained by additional such treatment given to the patient with bilateral Charcot hips. Operative procedures for the relief of

this condition in the hip are usually totally unsatisfactory. In the case of Charcot degeneration of such a stable joint as the hip (in contrast to the much less stable joints in the feet, ankles, and knees), a trial of androgenic therapy with testosterone propionate is thoroughly justified. This form of treatment has of course been used for other osseous lesions, such as metastatic cancer and ununited fractures, and has also been used (results unpublished) in a small series of patients, perhaps five or six in number, with Charcot hips. The administration of testosterone in large parenteral doses (100 mg. daily to a total of 3,000 to 4,000 mg. in a course) has, in certain patients with Charcot hips, resulted in increased blood calcium and the deposition of new bone in and around the disintegrating joint. This new bone deposition has created what is, in essence, "a false joint" and has enabled a few patients to get around with braces rather than with crutches. If this form of treatment is undertaken, it should, of course, be with the usual clinical and blood chemical controls of massive androgenic therapy. There is a clinical impression on the part of a number of observers (not verified by actual biostatistical data) that in patients with progressive Charcot joints further breakdown of the joint may be stopped by fever therapy with induced tertian malaria. The most that can be expected from this however, if indeed it occurs, is an arrest of the process without any improvement. In the long run, the management of all Charcot joints is an orthopedic problem.

DIMINISHED SPERM COUNT

To the Editor:—*A young couple each aged 25 consulted me because of infertility. The husband was found to have a sperm count of 200,000 and 400,000 per cubic centimeter on two occasions each preceded by a period of abstinence of 14 days. His history disclosed mumps orchitis at age 12, and physical examination revealed marked atrophy of one testis and less than normal size in the other. Is there any worthwhile treatment for this markedly diminished sperm count? Can the "rebound phenomenon" be applied in this case?*

James F. Kennedy, M.D., Alliance, Neb.

Answer.—The morphology of the spermatozoa should first be studied. If there is found to be a high proportion of abnormal forms, no benefit can be expected from treatment. Attempts to evoke a "rebound phenomenon" in cases of oligospermia are a gamble. The immediate effect of large doses of androgens is to depress still further the already poor spermatogenesis. In some men the sperm count subsequently rises above pretreatment levels. In others a "rebound" fails to occur, and the patient is then left worse off than he was originally. This consultant would hesitate to advise this method in the present case. By centrifuging semen deficient in number of spermatozoa it is possible to obtain material with a comparatively high concentration. This may be used for artificial insemination with a syringe or, alternatively, may be placed in a cervical cap and left in contact with the external os for several hours.

OCCUPATIONAL DERMATITIS

To the Editor:—*I have treated several patients with an occupational dermatitis. They have been working with metals, and several of them have stated that when they come in contact with magnesium, their hands seem to break out. I have tried to find some references to this metal and its effect in the literature, but so far I have not been able to find any.*

Albert Rubin, M.D., Hartford, Conn.

Answer.—This query fails to state the nature of the work involving metal handling, such as metal founding, metal machining, or metal polishing. Although other metals are mentioned as a group, none is named save magnesium. If magnesium founding was the work in question, dermatitis readily might arise not from the magnesium itself (apart from heat burns) but from the ammonium borofluoride or other fluorides commonly introduced into the mold. If machining operations constituted the work, then under some circumstances any occupational dermatitis might derive from cutting oils or other cutting compounds. If the other metals mentioned but not named included nickel, then nickel dermatitis as an allergic manifestation could arise. The characteristic action from occupational employment of metallic magnesium leads to the appearance of subcutaneous gas tumors from implanted magnesium slivers. Otherwise, neither on a contact basis nor allergy is a dermatitis expectable from the manipulation of metallic magnesium.

THROMBOANGIITIS OBLITERANS

To the Editor:—*The Sphygmo-oscillometer reading on one leg of a patient was nearly zero while on the other leg it was almost five. A consultant diagnosed thromboangiitis obliterans and did a sympathectomy about a month ago. The affected leg shows only a little increase in the sphygmo-oscillometer reading but the patient feels that it is better. Would the oscillometric reading ordinarily parallel the actual improvement, or is it normally delayed in its indication?*

O. C. Amstutz, M.D., Irvine, Ky.

Answer.—The oscillometer is a relatively insensitive instrument. Considerable clinical improvement may take place with relatively little change in oscillometer readings. Improvement in collateral circulation would be reflected in higher skin surface temperatures rather than greater oscillometer readings.

TAMPONS

To the Editor:—*Please comment on the use of tampons and sanitary napkins in relation to carcinoma of the cervix. Are there any statistics on this subject?* *M.D., Virginia.*

Answer.—There is no proof to show that the use of tampons or sanitary napkins leads to carcinoma of the cervix. Brand (*Brit. M. J.* **1**:24, 1952) studied 100 women who used vaginal tampons during 3 to 10 successive menstrual periods. Smears and cultures taken before and after each period showed no appreciable change in the bacterial flora of the vagina. Healing of erosions was not adversely affected, and there were no signs of local irritation or inflammation. Although there is no evidence that vaginal tampons are prejudicial to health, a retained tampon may damage the vagina or cervix. Patients should be warned to remove the soiled tampon before inserting a fresh one. Bowles (*Proc. Staff Meet., Straub Clin.* **18**:48, 1952) reports three instances of cervicitis, vaginitis, and a foul vaginal discharge due to forgotten vaginal tampons.

MAGNESIUM RODS IN HOT WATER HEATING UNITS

To the Editor.—*Our warm water heating unit is made of galvanized iron. To prevent rusting and corrosion it is equipped with a so-called magnesium rod. Is the water used from such a unit harmful for human consumption?*

M.D., New York.

Answer.—It is a frequent practice to include a magnesium rod inside hot water heating units. This is done to provide selective electrolysis, the magnesium being much more readily attacked than the galvanized or other coating on the iron. Slowly, this magnesium rod disintegrates with a continuous liberation of small quantities of hydrogen gas and magnesium ions into the ambient water. These additives to the water are harmless. The additional amount of magnesium is likely to provide a total less than naturally found in many hundreds of water supplies. So far as known nothing detrimental attends the use of these magnesium rods.

SUPPRESSION OF OVULATION

To the Editor:—*Would the use of an androgen hormone parenterally, when used for the control of dysuria during premenstrual tension, have any adverse effect on ovulation?*

M.D., Illinois.

Answer.—Small amounts of androgens will not interfere with ovulation; however, larger amounts may suppress ovulation, and the resultant menstrual flow will be anovulatory in character. No residual damage will result, for the cessation of therapy will be followed by a prompt recurrence of normal ovarian function. A basal body temperature graph kept by the patient will demonstrate whether the dose of androgens administered has suppressed ovulation in any given cycle.

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